Zhang, Y.Y., Monroe, G.S., Gasbarro, D., Cullen, G. and Shailer, G. (2011) Asset securitizations and audit effort. In: 24th Australasian Finance and Banking Conference, 14 - 16 December, Sydney, NSW, Australia.

Asset Securitizations and Audit Effort

Yu Yu Zhang[a], Gary Monroe[a], Dominic Gasbarro[b], Grant Cullen[b], Greg Shailer[c]

[a] *School of Accounting, The University of New South Wales, Sydney, 2052, Australia*

[b] *Murdoch Business School, Murdoch University, Perth, 6150, Australia*

[c]*School of Accounting and Business Information Systems, The Australian National University, Canberra, 0200, Australia*

Abstract

Asset securitizations increase audit complexity and audit risks, which are expected to increase audit effort. We predict auditors became more sensitive to banks' asset securitization risks in light of their role in bank failures and the financial downturn that commenced in 2007. Using bank holding company data from 2003 to 2009, we find that asset securitization risks (retained interests) are associated with bank audit fees during, but not before, the global financial crisis. This suggests auditors were previously less attentive to securitization risks before the GFC. The results are consistent with auditors previously treating securitizations as asset sales rather than recourse debt.

Keywords: Audit fees; Asset securitization; Bank holding companies; Financial crisis

Data Availability: All data are available from public sources identified in the paper.

JEL Classification: G01, G14, G21, M42

1 Introduction

Auditors have been criticized in relation to disclosure issues concerning asset securitizations in the form of mortgage-backed securities and collateralized debt obligations. During the emergence of the sub-prime mortgage through 2003-2005 and its eruption with the downturn in the U.S. real estate market in 2006, there was substantial attention given to accounting issues and valuation concerns with securitized assets (e.g., Karaoglu 2005; Niu and Richardson 2006; Shipper and Yohn 2007). Despite the public and political attention given to Fannie Mae in 2004 and related prosecutions in 2006, there was little such attention given to more generalized auditing risks pertaining to loan securitization at that time. Criticisms of auditors intensified with the 2007 surge in problems faced by firms dealing in securitized loans, exacerbated by the subsequent failures of banks and other mortgage lenders (e.g., Richard 2008).[1] It is now perceived that audit failures in relation to securitized assets pre-date the global financial crisis. The initial bank failures associated with the onset of the sub-prime mortgage crisis in 2007 and subsequent high profile cases of failure or distress have since attracted accusations that the auditors: did not take appropriate actions in response to fraudulent misstatements regarding recourse or repurchase provisions and helped or allowed companies to violate GAAP (e.g., New Century case[2]; see Kardos, 2009); issued inappropriate opinions on securitizations and overall insolvency (e.g., Lehman Brothers case 2007;see Richard, 2008); and used inadequate audit processes (e.g., Fannie Mae scandal 2006).Washington Mutual Bank was the sixth largest U.S. bank in 2008 when it became the largest U.S. bank failure in history. It was the thirteenth bank failure that year, but its size (assets $300 billion) is likely to have more acutely focused subsequent attention on the credibility of banks' accounting treatments of securitized assets involving low grade mortgages. It came shortly after the failure of Indy Mac (Independent National Mortgage Corporation; assets $32 billion), whose demise was also attributed to large losses from securitized mortgages. The perceived audit failures undermine the financial reporting credibility

[1]FIDC data indicates that, after zero failures in 2005 and 2006, 3 US banks failed in 2007, Failures then increased rapidly, with 25 in 2008, 140 in 2009 and 157 in 2010. An additional 13 banks received FIDC assistance in 2009-2010. Failure and assistance statistics are from the FIDC site http://www2.fdic.gov/hsob/ last accessed May 26, 2011.

[2]Accusations against New Century's auditor, KPMG, of failing to take appropriate action and aiding in breaches of GAAP are contained in the Complaint for Declaratory Relief; Negligence and Aiding and Abetting Breach of Fiduciary Duty to the Superior Court of The State of California filed by Thomas, Alexander & Forrester LLP (attorneys for The New Century Liquidating Trust) in March 2009.

of the reporting entities and harm domestic and global economies.

Prior studies investigate the economic substance of asset securitization risk transfers (Kane 1997; Niu and Richardson 2006; Shipper and Yohn 2007; Chen et al. 2008; Landsman et al. 2008; Barth et al. 2011), the extent of risk transfers with recourse (Higgins and Mason 2004; Gorton and Souleles 2006; Chen et al. 2008), information uncertainty regarding risk transfers (Cheng et al. 2011), and earnings and capital management in asset securitizations (Ambrose et al. 2005; Karaoglu 2005; Rosenblatt et al. 2005; Dechow and Shakespeare 2009; Dechow et al.2010). However, despite strong awareness of asset securitization risks evidenced in this research and the criticisms of auditors in relation to related bank losses after 2007, there is little or no prior research testing the link between asset securitizations risks to originating banks and their auditors' efforts.

We suggest that the characteristics of asset securitizations and flexible accounting rules were particularly challenging for auditors during the onset of the financial crisis. The complexity of asset securitizations and management's flexibility to choose whether to account for securitization as asset sales or borrowings (Kane 1997; Shipper and Yohn 2007) make it difficult for auditors to understand the true economic substance of the instruments, the financial risk status of the originating bank, and the discretionary earnings and capital management opportunities created by securitization transactions (Healy and Wahlen 1999; Matsumoto 2002; Karaoglu 2005). The challenges and auditors' limitations in this regard also affect auditors' risk considerations in audit planning and pricing (Houston et al. 1999; Phillips 1999; Beaulieu 2001). If auditors are focused on maintaining audit quality or an acceptable level of audit risk, higher securitization risk should induce increased audit effort, which will usually result in higher audit fees.[3] This allows us to use the established methods of audit fee studies to investigate whether auditors respond to differences in risks arising from asset securitizations, and whether auditor behavior in this regard has varied as a result of the global financial crisis.[4] The model we use for this purpose

[3]Alternatively, self-interested auditors who recognize their risk exposure but are constrained from increasing effort may price-protect themselves by charging an audit fee premium, also resulting in higher audit fees.

[4]The analysis of audit fees is a basic tool in research into the audit market and auditors' behavior. Extant studies extensively investigate cross-sectional determination and inter-temporal variation in audit fees for indications of variation in audit effort and fee premia (Simunic 1980, 1984; Palmrose 1986; Ettredge and Greenberg 1990; Pratt and Stice 1994; Craswell et al. 1995). However, most such studies specifically exclude financial institutions from their analyses because of the attendant accounting and risk differences compared to other sectors. Consequently, there is relatively little research on audit effort and pricing in the banking industry.

is consistent with that used in Fields et al. (2004) to examine audit fee differences in relation to bank characteristics, which we extend to include asset securitization risks reflected in the amount of securitized assets and the amount of retained interests (Barth et al. 2011).

This approach is consistent with the view that audit risk in asset securitizations associated with transaction complexity, sale or borrowing accounting choice flexibility, and the risk of earnings or capital manipulations by management, is represented in the amount of securitized assets (Kane 1997; Matsumoto 2002; Minton et al. 2004; Karaoglu 2005; Shipper and Yohn 2007; Landsman et al. 2008). Significant recourse against the originator of securitized assets is represented in retained interests, which is also sensitive to the reliability of fair value estimation conditioned on the economic environment (Barth et al. 2011).

Using publicly available data on U.S. bank holding companies (BHCs) from 2003 to 2009 (after which time accounting regulations changed with the issuance of FAS 166 and FAS 167), we find that audit fees are not influenced by asset securitization amounts or retained interests prior to the GFC, but audit fees increase with retained interests (RI) in the post-GFC period. This suggests that auditors did not recognize the risk of asset securitizations prior to the GFC.

Asset securitizations are economically significant and an important sources of audit risk, as revealed by the current financial crisis and bank failures. Therefore, the evidence in this study concerning the changed relevance of asset securitizations to audit effort is an important contribution to the established literature concerned with auditor behavior. The study also contributes to the emerging literature on bank audits, which is a growing area of policy interest since Basel (2008) called for “more research on bank audits, especially in areas that are of particular interest to bank regulators and important to financial markets”.

The remainder of this paper is organized as follows. The relevant literature is reviewed in Section 2 and hypotheses are developed in Section 3. Section 4 describes the research design and Section 5 reports the main results. Robustness tests and further testing are reported in Section 6 and Section 7. Section 8 concludes the study.

2 Background

2.1 Asset securitizations

A bank's asset securitization transaction begins with the bank selling its cash flow rights from a pool of financial assets, such as mortgages and loans, to a special purpose entity (SPE) which is usually organized as a qualifying special purpose entity (QSPE) to avoid consolidation in the bank's accounts. The loans are then securitized by the QSPE in ranked tranches. In the absence of credit enhancements, the most junior securities tranche is the first to bear any default losses arising from the securitized assets. When the first tranche is exhausted, the losses pass to the second junior tranche, and so on until all losses are absorbed. Credit enhancements can insulate senior securities from the default risk on the underlying financial assets. Enhancements are provided by the originators, or a third-party guarantor, in the form of cash collateral accounts, reserve funds, commitments to (re)purchase assets in default, credit derivatives, or recourse provisions. Rating agencies are involved in this step to assign ratings to the tranches. The securitization strategy is usually to maximize the size of the most senior tranche while still obtaining a AAA rating, and to leave the first (most junior) unrated and as small as possible while still allowing the second tranche to obtain an investment grade rating (Ryan 2008). The most junior tranche(s) is often retained by the SPE and the investment-grade tranches are sold to investors.[5] Proceeds from investors fund the SPE's purchase of the cash flow rights from the bank. The SPE distributes the future cash flows generated by the underlying securitized financial assets to the investors, as specified in the security.

2.2 Accounting choices

The main accounting choice in relation to the securitization of financial assets is whether the initial transfer to the SPE is a sale or borrowing. The disclosure risks pertain to transactions treated as sales. From 2003 to 2009, the accounting treatment was determined under FAS 140 and FAS 156.[6] Treating the transaction as a sale

[5]We don't consider situations where a retained junior tranche(s) is re-securitized to CDO with more complex securitization and credit enhancement procedures and sold to investors. This "upgrading" of the junior tranche to an investment-grade security has a similar balance sheet effect to the simpler model.

[6] For the years 2003 to 2009, accounting for an asset securitization was subject to FAS 140 (or FAS156 after 2006) Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities and FIN 46(R) An FASB interpretation of ARB 51 relating to consolidation of SPEs. The change in accounting standards from FAS 140 to FAS 156 has a very limited impact on the sale or borrowing accounting issue. The requirement change of

allowed a bank to: (1) remove the securitized assets from its balance sheet; (2) record cash proceeds as the amount received and recognize non-cash proceeds at fair value; (3) recognize the book value of the retained sub-securities as the proportion of the sub-securities' fair value to the fair value of the securitized assets; (4) recognize the retained interests as something other than sub-securities (e.g., servicing assets); and (5) record the difference between net cash proceeds and the value of the components of assets sold as a gain. Compared with secured borrowing accounting, sale accounting and their omission from the bank's consolidated financial report dress up reported leverage, liquidity, earnings, and the capital ratio.[7] For a securitization to qualify as an asset sale, the transferor must transfer the financial assets to a bankruptcy-remote entity and surrender controls of the transferred assets. To avoid being included in the bank's consolidated financial report, the entity must be a QSPE satisfying the conditions specified in FIN 46(R) or otherwise independent of the bank. If the asset transfer qualifies as a sale, the illiquid loans are written back and the bank recognizes any retained interests and servicing assets on its balance sheet; unrealized future cash flows are treated as a gains or loss in the current income statement.

2.3 The economic substance of asset securitizations

Before the reformation of securitization accounting rules, resulting in FAS 166 and FAS 167, the general view of asset securitization from standard setters and regulators was as a sale with the appropriate transfer of risks (FAS 140; FIN 46R). Although rating agencies state that they treat asset securitization as a secured borrowing before and after the sub-prime crisis (e.g., S&P Corporate Rating Criteria 2001, 2008), empirical evidence suggests that, in practice, the rating agencies treated asset securitization as an asset sale (Cheng and Neamtiu 2009; Barth et al. 2011). In contrast the capital market appears to endow securitization with incomplete transfers of control and risk and treat it as a secured borrowing in relation to its risk and value relevance (Kane 1997; Ryan 1997; Treacy and Carey 1998; Niu and Richardson 2006; Shipper and Yohn 2007; Hansel and Krahnen 2007; Chen et al. 2008; Landsman et al. 2008; Barth et al. 2011).

---

fair value measurement to servicing assets in FAS 156 limitedly affects our study as servicing assets are not the focus of this study and only represent a small portion of retained interests. Effective from November 2009, FAS 166 and FAS 167 largely limit the scope of accounting for asset securitization as sales since 2010.

[7] As shown in Appendix 1.

A fundamental aspect of the extent and nature of risk transfers in banks' asset securitizations is the extent of any explicit or implicit recourse that endowed the bank with residual risks in addition to their retained interests. The existence of unrecognized implicit risks appears to have been a basic issue in assessing the financial exposure of banks that had engaged in securitization. The information disclosures during 2003-2009 generally constrained identification of recourse risks carried by the originating banks.

It is generally accepted that asset securitizations increase information uncertainty and asymmetry (Amihud and Mendelson 1986; Chordia et al. 2001; Easley and O'Hara 2002; Cheng et al. 2011).[8] The financial reporting choices for asset securitizations cannot fully describe complex securitization transactions (Schwarcz 2004; Ryan 2007) and Barth et al. (2003) report that complexity and flexibility in security structuring and accounting treatments lead to information uncertainty and asymmetry.

3 Hypotheses Development

It appears that financial markets view asset securitizations, on average, as borrowings with the risk retained by the originator, especially under unfavorable market conditions (Kane 1997; Ryan 1997; Treacy and Carey 1998; Niu and Richardson 2006; Shipper and Yohn 2007; Hansel and Krahnen 2007; Chen et al. 2008; Landsman et al. 2008; Barth et al. 2011). If auditors are sensitive to market participants' attitudes towards asset securitizations, their audit risk assessment will emphasize the clients' levels of asset securitization, especially under unfavorable situations. We develop hypotheses that relate auditor risk to each of total asset securitizations and retained interests, and how the relations might vary with changing market conditions.

The purpose of an audit is to reduce information risk by providing assurance that an entity's financial report is free from material omissions or misstatements. We assume that, in keeping with professional standards, auditors seek to reduce audit risk

[8]Before the sub-prime crisis, it was argued that securitization could reduce information uncertainty. The grounds for this included: (1) securitization requires disclosure of more information than non-securitized assets (Foley et al. 1999; Schwarcz 2004); The increased transparency with regard to the underlying loans mitigates information asymmetry; (2) rating agencies published ratings on securities periodically and provide 3rd party monitoring on securitized assets; and (3) the underlying assets are subject to stricter disclosure requirements under securitization (Foley et al. 1999).

to an acceptable level when planning and conducting an audit. Based on the standard audit risk models, which identify audit risk as a product of the client's inherent risk and control risk and the auditor's detection risk, higher identified inherent risk or control risk leads the auditor to reduce detection risk by allocating more audit resources (expending more effort) to the higher risk areas of the engagement to achieve an acceptable level of estimated audit risk (O'Keefe et al. 1994; Pratt and Stice 1994; Lyon and Maher 2005; Hay et al. 2006).While there is no ex ante reason to suggest weaknesses in banks' controls vary systematically with the extent and characteristics of asset securitizations by the bank, we expect asset securitizations to increase the auditors' assessments of inherent risk for at least three reasons:

1. An asset securitization involves complex transaction procedures between multiple parties (such as the client bank, one or more SPEs, a guarantor, a rating agency and investors), which involve complex legal documents. The involvement of multiple parties and reliance on complex documents increases inherent risk.
2. Accounting for a securitization as a sale and externalization of the SPE and its subsequent transactions may veil the economic substance of the transaction to the bank and financial risk status of the bank.
3. Securitization transactions may arise from motives for earnings management (Healy and Wahlen 1999; Degeorge et al. 1999; Matsumoto 2002) and capital management (Moyer 1990; Karaoglu 2005). Bank management may exploit the information veil to use securitizations for manipulation purposes (Karaoglu 2005; Ambrose et al. 2005; Rosenblatt et al. 2005; Dechow and Shakespeare 2009).

3.1 The level of securitized assets and audit fees

The general expectation of increased inherent risk assessments leading to increased auditor effort is consistent with the extant auditing literature. There is substantial evidence in prior studies that client complexity, crudely proxied by measures based on organizational structure, asset structure and industry diversity, is positively associated with audit effort or fees (Hay et al. 2006). Evidence of the positive impact of the risk of earnings management or aggressive financial reporting on audit planning and pricing is reported in experimental studies (Houston et al. 1999; Phillips 1999; Beaulieu 2001) and archival research (Gul et al. 2003; Bedard and Johnstone 2004; Lyon and Maher 2005).

Given the transactional complexity of securitizations, the extent of the accounting discretion available during our study period, and the incentives for banks to maintain financial performance and capital levels, we argue that auditors will initially assess inherent risk as high, and then will have to examine aspects of a bank's asset securitizations to establish the appropriateness of accounting treatments irrespective of risks attached to retained interests. This implies that audit effort will vary in relation to clients' levels of asset securitization, holding other factors constant. The amount of securitized assets attributable to a bank may also indicate the potential for implicit recourse. Empirical and practical evidence suggest that originators sometimes provide implicit recourse to the investors (Higgins and Mason 2004; Calomiris and Mason 2004). Implicit recourse is fairly common in asset securitization; e.g., Higgins and Mason (2004) report 17 recourse events involving 10 credit card banks from 1987 to 2001 and find that only 2 credit card securitizations that entered early amortization did not provide recourse support to the securitized assets. There were many instances of voluntary credit support from originators by repurchasing assets or extending credit to the SPEs during the financial crisis of 2007-2009.[9] This potential, combined with the extent to which the amount of securitized assets may indicate undisclosed credit enhancements, or mis-described transactions, increases inherent risk, and thus the potential for a positive association between the amount of securitized assets and auditor effort. Therefore, we hypothesize a positive relation between the level of asset securitization by a bank and auditor effort as measured by audit fees:

H1: Audit fees are positively associated with the amount of securitized assets.

3.2 Retained interests and audit fees

Irrespective of the interpretation of an asset securitization as a sale or borrowing, we expect an auditor to consider the client's retained interests in securitized assets when evaluating the inherent risks associated with asset securitizations. The retained

[9]In December 2007, Citigroup brought back onto its balance sheet $49 billion of SPE assets that it had previously securitized. The same assets were valued at $87 billion in August 2007 and Citicorp's total retained interests in all securitizations were only $25.8 billion at December 31, 2006, indicating substantial losses to Citicorp in this striking example of honoring an implicit guarantee (Amiram et al. 2010).

interests represent the components that bear the first risk of losses on the securitized asset, which are designed to be sufficient enough to cover reasonably expected credit risks attached to the underlying assets. If auditors accept that an asset securitization is a sale of assets, their audit risk consideration in relation to asset securitization is restricted to the components of retained interests. If auditors form the view that a securitization has the characteristics of borrowing, In this case, a positive association between audit fees and total securitized assets rather than audit fees and retained interests is expected. Therefore, we make a directional prediction on the association between audit fees and retained interests:

H2: Audit fees are positively associated with the amount of retained interests.

Two other issues may also affect auditors' risk assessment of the information provided by retained interests. First, the value of retained interests is based on the fair value estimate of the securitization components (FAS 140; FAS 157). Due to the lack of a market consensus price, the fair value estimate of the components usually relies on certain subjective assumptions of default rates, prepayment rates and discount rates (FAS 157). Therefore, the reliability of fair value estimation is sensitive to the economic environment and is also subject to management manipulation (Dechow et al. 2009). Second, empirical research finds evidence on the existence of implicit recourse to subsidize SPE investors for any default losses related to the transferred assets (Higgins and Mason 2004; Calomiris and Mason 2004; Chen et al. 2008; Gorton and Souleles 2005). It implies that the actual guarantee provided by the originator is not limited to the extent of retained interests, but covers the overall credit risk of the underlying assets limited to the total amount of securitized assets in case of economic difficulties. If this is the case, although retained interests represent the explicit recourse of originators to investors, due to their subjective fair value estimates and the existence of implicit recourse, the retained interests should be no more important than other components in judging the true risk association between the originator and the securitized assets for auditors.

3.3 Auditor behavior with the global financial crisis

Following the downturn in the U.S. property market in 2006, the already

escalating rate of mortgage defaults rapidly accelerated. This further spurred the burgeoning credit crisis, increasing the general level of debt defaults, squeezing the earnings of financial sector businesses, and reducing confidence in many banks. The fall in earnings, emergent fragility of sub-prime debt instruments and increasing liquidity issues caused a deposit exodus from affected banks that lead to prominent failures; these, with the accompanying demise of non-depository banks and other financial entities crucial to the shadow banking system, had substantial widespread flow-on effects that rolled into the global financial crisis. Bankruptcy statistics reflect this pattern. In the calendar years 2003-2007, U.S. business bankruptcy filings totaled 35,037, 34,317, 39,201, 37,333 and 25,925 respectively. These escalated in 2008-2010, with annual totals of 38,651, 58,721 and 56,282.[10] Banks and their auditors would have been sensitive to lead indicators of bankruptcy, which we suggest would have heighted auditor sensitivity to the increased systemic risk from 2007 onwards.

Asset securitizations have been identified as significant contributors to the financial crisis. We investigate if auditors' response to asset securitization factors changed after the onset of the GFC. For an auditor, constraints on the availability of capital and credit, going concern and liquidity issues, the discretion and complexity in SPEs and other complex financing arrangements, and significant estimation and valuation uncertainty in a deteriorating market contribute to the auditor's appraisal of audit risk for a client in the financial market. Irrespective of their behavior in relation to asset securitizations prior to the downturn, we expect that auditors would pay more attention to asset securitization risks from 2007, resulting in a stronger relationship audit fees and asset securitization, compared to before the GFC:

H3a: There is a stronger positive association between audit fees and securitized assets after the onset of the GFC compared to before the GFC.

H3b: There is a stronger positive association between audit fees and retained interests after the onset of the GFC compared to before the GFC.

Asset securitization risks could be represented by the amount of securitized assets or by the amount of the retained interests, depending on auditors' analysis of

[10]Calendar year bankruptcy statistics obtained from www.uscourts.gov/statistics accessed June 2, 2011. A similar pattern is observed for non-business bankruptcy filings, which went from 597,965 in 2006 to 1,536,799 in 2010.

the economic substance of the asset securitizations.

3.4 The impact of asset securitizations on audit pricing to credit risks

Fields et al. (2004) suggest a positive association between audit fees and bank credit risks. Specifically, banks with higher level of commercial loans, mortgage loans and intangible assets are charged higher audit fees by auditors; banks with higher levels of problematic assets (proxied by the non-performing loan ratio and the charge-off ratio) are charged higher audit fees by auditors.

Asset securitizations have the potential effect of understating observable credit risks by removing on-balance sheet financial assets from the balance sheet. We argue that the awareness of the risks embedded in asset securitizations should raise auditors' concerns about auditees' on-balance sheet credit risks and result in more audit effort on credit risk evaluation and assurance, leading to higher audit fees.

H4a: As securitized assets increase, audit fees increase relative to credit risks.
H4b: As retained interests increase, audit fees increase relative to credit risks.

We measure the credit risks with asset structure proxies (commercial loan ratio, mortgage loan ratio) and problematic asset proxies (the non-performing loan ratio and the charge-off ratio). Asset securitization risks could be represented by the amount of securitized assets or by the amount of the retained interests, depending on auditors' understanding of the economic substance and/or the extent of risk transfer of asset securitizations.

4 **Research Design**

4.1 Model

We test the hypotheses by using an adaptation of the audit fee model for financial institutions in Fields et al. (2004) as presented below.

$$\begin{aligned} LNAF = {} & \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO \\ & + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN \\ & + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIENCY \\ & + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu \end{aligned} \quad (1)$$

Where:

LNAF	=	the natural logarithm of audit fee;
LNTA	=	the natural logarithm of total assets;
BIGN	=	1 when the incumbent auditor is a Big 4 auditor, 0 otherwise;
STDRET	=	the corresponding one-year standard deviation of daily stock returns;
LOSS	=	1 when the BHC reports a loss, 0 otherwise;
CAPRATIO	=	risk-adjusted capital ratio, defined as total amount of bank regulatory capital divided by risk-weighted assets;
TRANSACCT	=	transaction accounts, including non-interest-earning demand deposit accounts (DDAs), interest-bearing checking accounts in NOW accounts, automatic transfer from savings (ATS) accounts, and Money Market deposit accounts (MMDAs), divided by total deposit;
SECURITIES	=	investment security assets, including held-to-maturity and available-for-sale securities, divided by total assets;
COMMLOAN	=	the proportion of commercial loans to gross loans. Commercial loans involve commercial and industrial loans, loans to depository institutions, acceptances issued by other banks, and agricultural loans;
MTGLOAN	=	mortgage loans/gross loans;
INTANG	=	intangible assets/total assets;
CHGOFF	=	net charge-offs/allowance for loan and lease losses;
NONPERFORM	=	non-performing loans/gross loans. Non-performance loans are defined as past due 90 days or more and nonaccrual loans, leases and other assets;
INEFFICIENCY	=	the management efficiency ratio, defined as the ratio of total operating expense (including total interest and non-interest expenses) to total revenue (including total interest and non-interest revenues);
SENSITIVE ΔINT*	=	on-balance-sheet interest rate risk measure, defined as (interest rate-sensitive assets - interest rate-sensitive liabilities)/total assets, all multiplied by interest rate change in the current year;
INTDERIV	=	the notional amount of interest rate derivatives divided by total assets;
SAVING	=	1 when the BHC is a savings institution, 0 otherwise;

Fields et al. (2004) use SENSITIVE, the net interest-sensitive assets divided by total assets, to measure the bank's interest sensitivity. SENSITIVE is not a significant variable in the Fields et al. bank sample or our 2003-2009 BHC sample. We argue that the importance of interest-sensitivity should be linked with the magnitude and the direction of interest rate changes. Therefore, we add two variables to or model: SENSITIVE*ΔINT and INTDERIV. SENSITIVE*ΔINT modifies SENSITIVE by multiplying the annual changes in the market yield on U.S. treasury securities at one-

year constant maturity, quoted on investment basis. INTDERIV is the notional amount of a bank's interest rate derivatives divided by total assets, which we argue will capture off-balance-sheet interest rate risks.[11] The effect of interest rate derivatives on audit effort is two-fold. First, the interest rate risk from on-balance-sheet assets and liabilities could be hedged by off-balance-sheet interest rate derivatives, leading to reduced business risk and reduced audit fees. On the other hand, interest rate derivatives can be used for speculative purposes, hence exaggerating interest rate risk and increasing audit fees. In addition, the complexity of derivatives leads to increased audit fees.

Test Variables:

SARATIO	=	total outstanding securitized assets, deflated by total assets (Barth et al. 2011); and
RIRATIO	=	total retained interests, including retained interest only strips, retained credit enhancements, and unused commitments to provide liquidity (service advances), deflated by total assets (Barth et al. 2011);
GOSRATIO	=	relative gains on securitization, calculated as the net securitization income divided by net income;
PGFC	=	1 for the years 2007, 2008 and 2009, and 0 otherwise.

The test variables SARATIO and RIRATIO represent asset securitization risk factors as identified in Barth et al. (2011). SARATIO and RIRATIO measure the misstatement risk associated with asset securitizations based on the borrowing/sale accounting assumption. If auditors view a particular bank's asset securitizations as sales (borrowings), the misstatement risk pertains to the retained interest amount (total securitized asset amount). These measures also relate to the bank's overall credit risk and the misstatement risk in auditors' going concern reporting. We include GOSRATIO to control for the reported earnings misstatement risk arising from securitization sales. Prior research demonstrates that manipulating gains on securitizations can be an effective tool in earnings management and capital management (Degeorge et al. 1999; Matsumoto 2002; Rosenblatt et al. 2005; Dechow

[11]Banks could use interest rate derivatives to hedge on-balance-sheet interest rate risks. Supposing that the only purpose that banks use interest rate derivatives is to hedge their on-balance-sheet interest rate risks, a higher proportion of interest rate derivatives lead to lower risks and, potentially, lower audit fees. However, the notional amount of the derivatives and the amount of the on-balance-sheet position hedged might not be the same. (Under the derivative mechanism, the derivative amount is affected by both the amount of the hedged position and the date to maturity of the derivative and the hedged position.) While the relation between INTDERIV and on-balance-sheet interest rate risks is not clear, we argue it is a good proxy for off-balance-sheet risk.

and Shakespeare 2009).

4.2 Data Source and Criteria

Consistent with prior research (e.g., Karaoglu 2004; Chen et al. 2008; Barth et al. 2011), we draw bank financial data and asset securitization details from the FRB Y9-C Regulatory Filing database. Y9-C reports are filed each quarter by BHCs that have total assets exceeding $150 million before 2006 and BHCs with total assets exceeding $500 million after 2006. The limit of $150 million before 2006 and the increase of the reporting threshold to $500 million total assets after 2006 do not affect our results because the majority of banks engaging in asset securitizations are over the $500million asset threshold throughout our study period.[12]Securitization information is disclosed in Schedule HC-S "Servicing, Securitization and Asset Sale Activities" of Y9-C reports, which are included in the reports from the second quarter of 2001 with more details of retained interests disclosed after 2003.

Auditor details are extracted from Audit-Analytics database. One-year standard deviations of daily stock returns are calculated from daily stock prices and dividend information collected from CRSP database. Interest rate information is obtained from U.S. Treasury and FRB official disclosures. The economic condition indicator, NYSE Financial Sector Index is collected from the NYSE official website.

4.3 Sample

We restrict our sample to BHCs. First, for firms performing securitization activities, BHCs represent a relatively large and economically important sample (Barth et al. 2011). Niu and Richardson (2006) indicate the intensity of securitization related transactions in the traditional financial sector is stronger than in other sectors. Dechow et al. (2009) report that BHCs are the primary securitizers of assets. Second, as stated in Chen et al. (2008), restricting our sample to BHCs increases the power of control for factors other than interested variables, which increases our ability to observe the effect of the securitization risks. Furthermore, as the audit fee information can only be available for publicly listed companies, we only include publicly listed BHCs in our sample.

We restrict the sampling period from 2003 to 2009 for two reasons. First, the

[12] See Appendix 2: Supporting Figures.

sampling period starts at 2003 as securitization data are only available on Y9C Bank Regulatory reports after the second quarter of 2001, and most of the retained interests' information is available after 2003. Second, the application of FAS 166 and FAS 167 from November 2009 has largely changed the accounting treatment for asset securitizations; therefore we end the sampling period at 2009.

The final sample consists of 2,424 firm-year observations for the period 2003-2009 on 452 U.S. publicly listed BHCs.[13]Of our 2,424 firm-year observations, 2,113 (87%) observations do not report any outstanding securitized assets and 2,228 (92%) do not report any retained interests. We divide our sample into 2,113 firm-years for 384 BHCs that are non-securitizers (SA=0) and 311 firm-years for 68 BHCs that are securitizers (SA>0). For the securitizer subsample, there are 196 firm-year observations (on 49 BHCs) reporting retained interests.

4.4 Descriptive Statistics[14]

Means of variables are presented in Table 1, with means-difference tests for securitizers and non-securitizers, and annual pooled means. The pooled average audit fees are $1.3 million, with a strong upward trend from 2003 to 2009. There are significant mean differences between securitizers and non-securitizers for most variables. Specifically, on average, securitizers have significantly higher audit fees and total assets, are more likely to choose a Big N auditor, have higher capital ratios, common loan ratios, mortgage loan ratios and intangible asset ratios. Generally, this is consistent with the likelihood of a BHC engaging in securitization increasing with BHC size.

In our sample, the proportion of BHCs audited by Big N auditors steadily declines from 57.3% in 2003 to 41.7% in 2009. Simunic and Stein (1987) and Fields et al. (2004) discuss the lower ratio of Big-N auditors for bank audits, compared to other industries, as that increased litigation risk in the banking industry results in a shift from larger to smaller audit firms.[15] Ettredge et al. (2009) claim that the decrease in Big-N audits in BHCs reflects client migration to small auditors after SOX 404 became effective. Our unreported analysis indicates that the average audit fees and

[13] See Appendix 2: Supporting figures for detailed sampling procedures.
[14] RI reported for J.P. Morgan increased from $8bn in 2008 to $99bn in 2009. We have not found relevant information on this sudden change. At this stage, we have exclude JPM 2009 from the analyses.
[15] Fields et al. (2004) report that Big N auditors audited more than 70% of BHCs in 2000.

total assets values are all much lower in Non-Big N audits than in Big N audits.

There is a sharp increase in the proportion of BHCs experiencing a loss duringthe GFC. Correspondingly, with the consideration that the asset composition is generally stable during the period (e.g. TRANSACCT, COMMLOAN, MTGLOAN etc.), asset quality experiences an unfavorable change duringthe GFC, as reflected in the deterioration of non-performing loan ratios (NONPERFORM) and the charge-off ratios (CHGOFF). On average, securitizers appear to have lower asset quality (CHGOFF and NONPERFORM) and have higher on-balance-sheet and off-balance-sheet interest rate sensitivity.

The sample is highly right-skewed with mean values more than 10 times larger than the median values for the pooled data and the yearly data. This distribution is common in banking research (e.g., Fields et al. 2004; Karaoglu 2005; Chen et al. 2008 and Ettredge et al. 2009). Fields et al. (2004) attribute it to several very large BHCs in the sample.

We winsorize all continuous control variables at their 1 and 99 percentiles.

<Table 1>

4.5 Correlations

Table 2 shows Pearson correlations between the regression variables. The natural logarithm of audit fees (LNAF) is highly correlated with most of the control variables except for SECURITIES. The asset securitization measures, namely SARATIO and RIRATIO are significantly correlated with each other ($r = 0.264$, $p<0.0001$), and both are significantly correlated with LNAF ($p<0.0001$). SARATIO and RIRATIO are also correlated with a number of control variables. The positive correlation between asset securitization measures and LNTA support the view that asset securitizations are more likely to occur in large BHCs. We explain the positive correlation between asset securitization measures and Big N auditors as that the complexity of asset securitization transactions forces BHCs to go to Big N audit firms rather than small audit firms. The derivative measure INTDERIV is positively correlated with LNAF, implying that auditors charge higher audit fees for BHCs with larger proportions of interest rate derivative positions. Derivative transactions are higher for BHCs with larger size and Big N clients. Derivative positions are lower for BHCs with higher market volatility, higher proportion of investment securities, and higher proportion of

mortgage loans. In addition, SARATIO and RIRATIO are both positively correlated with INTDERIV. The differences in the structures of securitizers and non-securitizers are also reflected in the correlation table.

<Table 2>

5 Results

We report the regression results for pooled data based on clustered standard errors (clustered on BHCs) and control the year effects.

5.1 The Validity of Modified BHC Audit Fee Model

As a reliability test, we first estimate the Fields et al. (2004) model, which does not consider securitizations, using our pooled sample. As reported in Table 3, LNTA, BIGN, SECURITIES, INEFFICIENCY, NONPERFORM, CAPRATIO and INTANGIBLE are significant and have the same signs as reported in Fields et al. (2004) for cross-sectional data for the year 2000 data. (Note that SECURITIES is defined as 1 minus investment securities/total assets in Fields et al. (2004) but defined as investment securities/total assets in this study, so our seemingly opposite signs are consistent). The signs we obtain for STDRET and MTGLOAN are opposite to those in Fields et al. (2004). However, in the modified model discussed next, STDRET is not significant in our first year (2003) and negative thereafter.

The Fields et al. (2004) variable, SENSITIVE, the net interest sensitive assets divided by total assets, is not significant in Fields et al. (2004) nor for our sample. In Model 1, we drop SENSITIVE and add SENSITIVE*ΔINT and INTDERIV. We estimate this model for the pooled sample and for each year. As reported in Table 3, this improves model fit. INTDERIV is significant and positive for the pooled sample ($p<0.01$) and for each year. SENSITIVE*ΔINT is significant (and negative) only in 2007.[16] The yearly regressions for the modified model yield stable and consistent results on LNTA, BIGN, EFFICIENCY, and INTDERIV.

We apply Chow tests to signal the structural changes of the audit fee model before and after the onset of the GFC. With post-GFC indicator as the breaking point, both the Fields et al. (2004) and the modified audit fee models exhibit significant changes.

[16]SENSITIVE*ΔINT is significant in the model when there is no controls on year fixed effects.

<Table 3>

5.2 Audit Fees and Asset Securitizations

To test H1 and H2, we add SARATIO and RIRATIO with the control variable GOSRATIO to our modified Model 1. To test H3, we then, add the time-period indicator PGFC and the interaction terms SARATIO*PGFC and RIRATIO*PGFC into the model. The results are reported in Table 4. For efficiency, we report the coefficients for the new variables only.[17]

The results do not support H1. SARATIO is significant only in 2007 and 2009, when it is negative. H2 is supported, with RIRATIO positive and significant. RIRATIO is significant only in 2003 and in the later years of GFC. The interaction term in the pooled result, RIRATIO*PGFC is significant and positive, consistent with H3b.

SARATIO and RIRATIO are significantly correlated (see Table 3).Therefore, we also estimate the model for the pooled sample with only one of SARATIO, RIRATIO, SARATIO*PGFC or RIRATIO*PGFC (Table 4 Panel B). Both SARATIO and RIRATIO are positively significant, indicating some substitution effect. However, SARATIO*PGFC remains negative while RIRATIO*PGFC remains positive.

<Table 4>

5.3 The Impact of Asset Securitizations on Audit Fees relative to Credit Risks

We report the effects of asset securitizations on audit fees, relative to credit risk factors, in Table 5. We use the ratio of commercial loans (COMMLOAN) and mortgage loans (MTGLOAN) to proxy for the credit risks pertaining to asset structure and the non-performing loan ratio (NONPERFORM) and charge-off ratio (CHGOFF) as proxies for credit risks pertaining to asset quality. These are interacted with our securitization variables SARATIO and RIRATIO, and the period indicator PGFC.

There is some indication that asset securitizations affect the association between the asset structure measures and audit fees. The interactions of asset structural credit risk measures with PGFC suggest that auditors marginally increase their audit fees in response to commercial loans and mortgage assets when the BHC shows a higher proportion of retained interests. Controlling for CHGOFF results in a positive

[17] Our other new variable, INTDERIV, remains significant and positive when we add the asset securitization factors, a GFC dummy variable, and changes in the financial index to the model.

coefficient for SARATIO, indicating further analysis is needed.

<Table 5>

6 Robustness Tests

6.1 Matched Pair Sample and Securitizer Only Sample

Table 6 Panel A reports the matched pair sample results and securitizer subsample results, which are in response to the suspicion that securitizers are structurally different from non-securitizers. Securitizers have much higher audit fees (LNAF) and larger BHC size (LNTA), a higher proportion is audited by Big N auditors (Big N) and they have lower stock price volatility (STDRET), a higher level of loan-charge-off (CHGOFF), and a higher level of intangible assets (INTANG). Securitizers are more involved in on-balance-sheet and off-balance-sheet interest rate risks (SENSITIVE*ΔINT and INTDERIV). Not surprising is the fact that the securitizer subsample is more actively involved in asset securitization transactions than the full BHC sample. The matched pair sample consists of 280 BHCs in the control group without asset securitization activities and 280 BHCs in the study group with asset securitization activities from 2003 to 2009. The matching procedure is: (1) for each case, control cases are matched on LNTA (the BHC size measure) and Year (the year measure); and (2) if more than one control case matches the study case, one control case is randomly selected.

The securitizer subsample has 311 BHC-year observations (310 observations are tested with JPM 2009 excluded at this stage). As shown in Table 6, the results on the matched pair sample and the securitizer-only subsample are quantitatively consistent to the results in the main analysis. Although asset securitization factors are not associated with LNAF for the study period from 2003 through 2009, the interaction term RIRATIO*PGFC is positive and significant, indicating that audit pricing associated with retained interests increased after the GFC. Similar to the main test results, the negative association between SARATIO and LNAF in the during-GFC period is hard to explain.

<Table 6>

6.2 CAMELS Audit Fee Model Results

We have concern that Model (1) is over-modeled with 16 control variables. In response, we establish Model (2) with reduced numbers of ratio variables from the CAMELS framework. In this model, BHC size, auditor choice, and market volatility are still controlled. BHC characteristics are controlled with CAMELS proxies. Particularly, capital risk (C) is controlled by CAPRATIO; asset quality (A) and earnings capacity (E) are jointly controlled by NONPERFORM and CHGOFF; management efficiency (M) is controlled by INEFFICIENCY, liquidity risk (L) is controlled by the ratio of securities assets as securities assets are the primary liquidity source for banks. The sensitivity to market risk is controlled by SENS*ΔINT and INTDERIV. The CAMELS model results (Table 6 Panel B) are generally consistent with the main test results from the modified Fields et al. model.

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 CAPRATIO + \beta_5 CHGOFF + \beta_6 NONPERFORM + \beta_7 INEFFICIEN CY + \beta_8 SECURITIES + \beta_9 SENS * \Delta INT + \beta_{10} INTDERIV + \mu$$

Model (2)

6.3 Controlling for Changes in Macroeconomic Conditions, Auditor change and Auditor Independence, Investment in MBS and ABS

We want to clarify if the audit fee determination changes with the macro-economic conditions other than the GFC. Therefore, we control for changes in the NYSE financial sector index as a measure of the macro-economic condition of the banking industry (DFININDEX). The NYSE Financial Index increased from 5148 in 2003 to a peak of 10745 in 2007. Afterwards, the NYSE Financial Index decreased to 9395 in 2008 and 4667 in 2009. [18] Accordingly, the annual changes of NYSE Financial Index are positive for the pre-GFC years from 2003 to 2006, but negative for the GFC periods 2007 and 2008.

Inclusion of Year 2006 as a pre-GFC year might not be appropriate as this year may have seen some signals of banking distress and financial crisis and auditors may have been affected by them in audit pricing accordingly. There is also an argument about using Year 2007 as the starting point for the GFC as major influences of the

[18] For simplicity, we use the financial index of the first business day in the year to represent the year's financial index. An unreported analysis shows that the results are not affected when we use average financial index of the year.

financial crisis were reflected in the economy from 2008. Therefore, we exclude the years 2006 and 2007 respectively from the pooled sample and rerun the regressions.

The addition of an auditor change indicator or auditor independence measure into the regression does not affect the main test results. Specifically, AUDITORCHANGE is not a significant factor for BHC audit fee determination, both before and during the GFC. The auditor independence measure, LNNAF, is positively associated with LNAF, indicating that non-audit service fees are increasing with the increase of audit fees. In accordance with Hay et al. (2006), we explain the positive association between LNNAF and LNAF as non-audit services may lead to extensive changes in BHCs and, therefore, require additional audit effort and result in higher audit fees.

In response to the argument that BHC's investment in mortgage-backed securities (MBS) and asset-backed securities (ABS) would be more important for auditors than its own securitization activities, we add the BHC's investment in MBS and ABS securities into the regression. Untabulated results indicate that for the pooled period, auditors do not price the bank's investment in MBS and ABS securities. For the period during the GFC, auditors start to increase audit pricing on the bank's MBS and ABS investment.

Except for the individual effect of above controls on audit fees, untabulated results indicate that further controlling on macroeconomic conditions, excluding the year 2006 or 2007, controlling for auditor change and auditor independence, and including investment in MBS and ABS into the regression do not affect the main test results.

7 Additional Analyses

7.1 Big N Auditors and Industry Specialists

The main tests suggest that auditor type is an important factor affecting audit fees. Untabulated descriptive statistics indicate that audit fees and total asset values are much higher for Big N clients than for Non-Big N clients. Big N clients also have higher securitization amounts. Comparing the financial risk factors, Big N clients are less likely to report a loss (LOSS) and have lower market risk (STDRET), implying that Big N clients are usually less risky. We test whether the association between audit

fees and asset securitization factors are different between Big N auditors and non-Big N auditors. Table 7 Panel A indicates that Big N and non-Big N auditors both increase audit fees after the GFC; but only Big N auditors increase their audit pricing to asset securitization risks after the GFC (RIRATIO*PGFC: β =5.67, p<0.10). In contrast, non-big N auditors decrease audit pricing to both SARATIO and RIRATIO after 2007. The results can be cautiously interpreted as Big N auditors probably have better awareness of asset securitization risks, even though the results might have been distorted by the cluster of asset securitization activities in Big N clients.

An alternative explanation of the Big N audit fee premiums on asset securitizations is the better audit quality of industry specialists. Panel B identifies the names of auditors with the number of audits during the period, average total assets per client, and total assets audited. PWC has the highest average total assets per clients ($141,279 million), indicating that PWC dominates the large BHC market. KPMG has the largest number of audits (N=543) and the second largest average total assets per client ($44,661 million). The other two Big 4 auditors, Ernst & Young and Deloitte & Touché also have much larger BHC client base than non-Big 4 auditors. We distinguish PWC and KPMG as industry specialists from the other two big N auditors. The results suggest that PWC and KPMG do not charge higher audit fees than the other two Big N auditors. Due to serious multicollinearity, it is hard to interpret the difference of individual Big 4 auditors' pricing to asset securitization factors.

<Table 7>

7.2 Large BHCs

We are particularly interested in the large BHCs as asset securitizations are clustered in large BHCs. Large BHCs have higher audit fees and more asset securitization activities, are more likely to employ Big N auditors, incur a loss, and have a higher charge-off rate, a higher intangible asset ratio and a higher interest-sensitive asset ratio than small BHCs. Dividing the pooled sample into small BHC and large BHC subsamples from the median total assets, Table 8 Panel A suggests that the main test results are consistent for large BHCs but not for the small BHC subsample. By differentiating the top 500 largest BHCs from other BHCs in Panel B, the top 500 largest BHC subsample reports consistent results as the main tests, while the results on other BHCs are insignificant. Overall results in Table 8 suggest that the

main test results are driven by large BHCs.

<Table 8>

7.3 BHCs related to Failed Banks

We are interested in whether auditors' pricing to asset securitization risks are influenced by relevant bank failure for two reasons. First, survivorship bias is an important issue to be addressed especially for BHCs from 2003 to 2009 when there is an increasing number of bank failures after 2008. Second, it is particularly interesting that if the auditors could differentiate those BHCs related to subsequently failed banks in audit pricing.

Table 9 addresses the BHCs related to subsequent bank failures in their subsidiaries or themselves.[19] In 2,113 non-securitizer observations, 136 BHC-year observations (6.44%) are related to bank failures in their subsidiaries or themselves; in 311 securitizer observations, 21 observations (6.75%) are related to bank failures. It is noted that BHCs related to bank failures are higher in LOSS, CHGOFF, NONPERFORM, MTGLOAN and on-balance-sheet interest rate sensitivity, and lower in CAPRATIO and INTDERIV. It is also interesting that survivor BHCs have a negative mean GOSRATIO while failed BHCs have a positive mean GOSRATIO. The regression results indicate that BHCs related with subsequent bank failures are charged higher audit fees. In addition, the audit pricing to securitization factors are different for survivor BHCs and failed BHCs. While the survivor BHC subsample reports consistent results as the main tests, the failed BHC subsample's results are not clear, probably due to the small sample size.

<Table 9>

8 Discussion and Conclusions

At this stage, our study presents a cross-sectional and inter-temporal picture on the association between audit fees and asset securitization risks. No prior study has focused on auditors' responses to the risks associated with asset securitization. The main tests and additional analyses are generally consistent on the association between audit fees and asset securitization factors in several dimensions. Retained interests are

[19]Most of the bank failures reported by FDIC are not BHCs, but are the subsidiaries of BHCs.

significantly associated with audit fees, and this positive association strengthens for the GFC period. On the other side, although the main tests and subsequent robustness tests and additional tests give us fairly consistent results, our results are, thus far, inconclusive. The relevance of total securitized assets is still unclear.

Our results address the question that "where were the auditors in asset securitizations" under the lens of audit pricing. It suggests that auditors focused on the risks associated with the retained portion of the securitized assets in their audits, rather than securitization levels, especially during the GFC. This is consistent with auditors treating asset securitizations as sales, even though bank failures during the GFC demonstrate that it might be wiser to treat them as secured borrowings.

We also find that off-balance-sheet risks audit effort, as reflected in audit fees; and the macroeconomic condition and non-audit service fees are important determinants of audit fees. By comparing the audit pricing to asset securitization risks for BHCs audited by Big N and non-Big N auditors, we obtain inconclusive signals that Big N auditors are better at pricing asset securitization risks than non-Big N auditors.

This study contributes to the limitedly developed bank audit literature. It provides insights on auditors' responses to the financial crisis, particularly with regard to asset securitizations. The relatively stable regulatory and accounting standard environment during the study period enhances our study as a test of auditor behavior in relation to a deteriorating economic environment. By addressing bank audits and asset securitizations, we consider several issues identified in Basel (2008) regarding consolidation, fair value estimation and disclosures of off-balance-sheet vehicles.

The limitations of our study include the following. First, due to the data availability, our study only covers 4 years pre-GFC data and 3 years of GFC data. This might not be sufficient to capture auditors' learning and responses to securitization issues. Second, this study only analyses the cost-side of the association between audit pricing and asset securitization. Reporting quality and audit quality in securitization audit is pending further research.

References

Ambrose, B. W., M. LaCour-Little and A. B. Sanders, 2005, Does regulatory capital arbitrage, reputation, or asymmetric information drive securitization? Journal of Financial Services Research 28, 113-133.

Amiram, D., W.R. Landsman, K.V. Peasnell, and C. Shakespeare, 2010, Market reaction to securitization retained interest impairments during the financial crisis of 2007-2008: are implicit guarantees worth the paper they're not written on? Working paper, Columbia University

AICPA, 1984, Statement on Auditing Standards No. 47: Audit risk and materiality in conducting an audit (New York, NY: AICPA)

AICPA, 2006, Statement on Auditing Standards No. 107 (Supersedes SAS No. 47): Audit risk and materiality in conducting an audit, (New York, NY: AICPA)

AICPA, 2009, Audit Risk Alert: Current economic crisis—Accounting and auditing considerations, (New York, NY: AICPA)

Amihud, Y., and H. Mendelson, 1986, Asset pricing and the bid-ask spread, Journal of Financial Economics 17, 2, 223-249

Bank of International Settlements, 1988, Basel Capital Accord: International convergence of capital measurements and capital standards (Bank of International Settlement, http)

Barth, M. E., G. Clinch, and T. Shibano, 2003, Market effects of recognition and disclosure, Journal of Accounting Research 41, 581-609

Barth, M. E., G. Ormazabal, D. J. Taylor, 2011, Asset securitizations and credit risk,The Accounting Review, Forthcoming

Basel Committee on Banking Supervision, 2008, External audit quality and banking supervision (Bank of International Settlements, ISBN 92-9131-783-7)

Beaulieu, P. R., 2001, The effects of judgments of new clients' integrity upon risk judgments, audit evidence, and fees, Auditing: A Journal of Practice and Theory 20, 85-99.

Bedard, J. C., and K. M. Johnstone, 2004, Earnings manipulation risk, corporate governance risk, and auditors' planning and pricing decisions, The Accounting Review 79, 2, 277-304

Craswell, A.T., J. R. Francis, and S. L. Taylor 1995, Auditor brand name reputations and industry specializations, Journal of Accounting and Economics 20, 3, 297-322

Calomiris, C. W., and Joseph R. Mason, 2004, Credit card securitization and regulatory arbitrage, Journal of financial Services Research 26, 1, 5-27

Chen, W, C. Liu, and S. G. Ryan 2008, Characteristics of securitizations that determine issuers' retention of the risks of the securitized assets, The Accounting Review 83, 5, 1181-1215.

Cheng, M, and M. Neamtiu 2009, An empirical analysis of changes in credit rating properties: Timeliness, accuracy and volatility, Journal of Accounting & Economics 47, 1-2, 108-130

Cheng, M., D. Dhaliwal, and M. Neamtiu, 2011,Asset Securitization, Securitization Recourse, and Information Uncertainty, The Accounting review 86, 2, 541-568

Chordia, T., A. Subrahmanyam, and V. Anshuman, 2001, Trading activities and expected stock returns, Journal of Financial Economics 59, 3-32

Dechow, P. M., L. A. Myers, and C. Shakespeare, 2010, Fair value accounting and gains from asset securitizations: A convenient earnings management tool with compensation side-benefits, Journal of Accounting and Economics 49, 2-25

Dechow, P. M., and C. Shakespeare, 2009, Do managers time securitization transactions to obtain accounting benefits? The Accounting Review 84, 1, 99-132

Degeorge, F., J. Patel, and R. Zeckhauser, 1999, Earnings management to exceed thresholds, Journal of Business 72, 1, 1-33

Easley, D., and M. O'Hara, 2002, Is information risk a determinant of asset returns? Journal of Finance 57, 2185-2221

Easley, D., and M. O'Hara, 2004, Information and cost of capital, Journal of Finance 59, 1553-1583

Ettredge, M., and R. Greenberg, 1990, Determinants of fee cutting on initial audit engagements, Journal of Accounting Research 28, 1, 198-210

Fields, L. P., D. R. Fraser, and M. S. Wilkins, 2004, An investigation of the pricing of audit services for financial institutions, Journal of Accounting and Public Policy, 23, 53-77

Financial Accounting Standard Board, 1996, Statement of Financial Accounting Standards No. 125: Accounting for transfers and servicing of financial assets and extinguishments of liabilities (Norwalk, CT: FASB)

Financial Accounting Standard Board, 2000, Statement of Financial Accounting Standards No. 140: Accounting for transfers and servicing of financial assets and extinguishments of liabilities, a replacement of FASB Statement No. 125,(Norwalk, CT: FASB)

Financial Accounting Standard Board, 2003, FASB Interpretation No. 46 (Revised December 2003): Consolidation of Variable Interest Entities, (Norwalk, CT: FASB)

Financial Accounting Standard Board, 2006, Statement of Financial Accounting Standards No. 156: Accounting for servicing of financial assets an amendment of FASB Statement No. 140, (Norwalk, CT: FASB)

Financial Accounting Standard Board, 2006, Statement of Financial Accounting Standards No. 157: Fair value measurements, (Norwalk, CT: FASB)

Financial Accounting Standard Board, 2009, Statement of Financial Accounting Standards No. 166: Accounting for transfers of financial assets an amendment of FASB Statement No. 140, (Norwalk, CT: FASB)

Financial Accounting Standard Board, 2009, Statement of Financial Accounting Standards No. 167: Amendments to FASB Interpretation No. 46 (R), (Norwalk, CT: FASB)

Foley, T., R. Cantor, and M. Andersion 1999, The evolution of Moody's views on securitization, Moody's Special Report, May

Gorton, G. B., and N. S. Souleles, 2006, Special purpose vehicles and securitization, chapter in The Risk of Financial Institutions, edited by Rene Stulz and Mark Carey, (University of Chicago Press)

Gul, F. A., C. Chen, and J. Tsui, 2003, Discretionary accounting accruals, managers' incentives, and audit fees. Contemporary Accounting Research 20, 3, 441-464

Hansel, D., and J. P. Krahnen, 2007, Does credit securitization reduce bank risk? Evidence from the European CDO market, Working paper (University of Frankfurt)

Hay, D., R. Knechel, and N. Wong, 2006, Audit fees: A meta-analysis of the effect of supply and demand attributes, Contemporary Accounting Research 23, 141-191

Healy, Paul. M., and Krishna G. Palepu, 2001, information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature, Journal of Accounting and Economics 31, 405-440

Healy, P. M, and J. Wahlen, 1999, A review of the earnings management literature and its implications for standard setting, Accounting Horizons 13, 4, 365-383

Higgins, E., and J. R. Mason 2004,What is the value of recourse to asset backed securities? A study of credit card bank ABS Rescues, Journal of Banking and Finance 28, 4, 857-874

Houston, R. W., M. F. Peters, and J. H. Pratt, 1999, The audit risk model, business risk and audit-planning decisions, The Accounting Review 74, 3, 281-298

Kane, G. D., 1997, The problem of how to account for asset securitization transactions, Journal of Accounting Education 15, 1, 39-51

Karaoglu, E., 2005, Regulatory capital and earnings management in banks: The case of loan sales and securitizations, FDIC Center for Financial Research Working Paper No. 2005-05

Kardos, Donna, 2009 KPMG is sued over New Century, The Wall Street Journal, April 2, C3

Landsman, W. R., K. V. Peasnell, and C. Shakespeare, 2008, Are asset securitizations sales or loans? The Accounting Review 83, 5, 1251-1272

Lyon, J. D., and M. V. Maher, 2005, The importance of business risk in setting audit fees: Evidence from cases of client misconduct, Journal of Accounting Research 43, 1, 133-151

Mansi, Sattar, William F. Maxwell, and Darius P. Miller, 2004, Does auditor quality and tenure matter to investors? Evidence from the bond market, Journal of Accounting Research 42, 4, 755-793

Matsumoto, D. A., 2002, Management's incentives to avoid negative earnings surprises, The Accounting Review 77, 3, 483-514

Minton, B., A. Sanders, and P. E. Strahan, 2004, Securitization by banks and finance companies: Efficient financial contracting or regulatory arbitrage? Working Paper (The Ohio State University)

Modigliani, F., and M. Miller, 1958, The cost of capital, corporation finance and the theory of investment, American Economic Review 48, 261-297

Moyer,S. E., 1990, Capital ratio adequacy regulations and accounting choice in commercial banks, Journal of Accounting and Economics 13, 123-154

Niu, F. F., and G. D. Richardson, 2006, Are securitizations in substance sales or secured borrowings? Capital-market evidence, Contemporary Accounting Research 23, 4, 1105-1133

O'Keefe, Dan A. Simunic, and Michael T. Stein, 1994,The production of audit services: Evidence from a major public accounting firm. Journal of Accounting Research 32, 2, 241-261

Palmrose, Z. 1986，Audit fees and auditor size: Further evidence，Journal of Accounting Research 24, 1, 97-110

Pennacchi, G. G., 1988, Loan sales and the cost of bank capital, Journal of Finance 43, 2,375

Phillips, F., 1999, Auditor attention to and judgments of aggressive financial reporting, Journal of Accounting Research 37, 1, 167-189

Pratt, J., and J. D. Stice, 1994, The effects of client characteristics on auditor litigation risk judgments, required audit evidence, and recommended audit fees, The Accounting Review 69, 4, 639- 656

Richard, P.J., 2008, Where were auditors as companies collapsed? American Banker, October, 10

Rosenblatt, M., J. Johnson, and J. Mountain, 2005, Securitization accounting, the Ins

and Outs (and some Do's and Don'ts) of FASB 140, FIN 46R, IAS 39 and more,(7th edition, New York, NY: Deloitte)
Ryan, S. G., 1997, A survey of research relating accounting numbers to systematic equity risk, with implications for risk disclosure policy and future research, Accounting Horizons 11, 2, 82-95
Ryan, S. G., 2002&2007, Financial instruments and institutions: Accounting and disclosure rules, (Hoboken, NJ: John Wiley & Sons)
Ryan, S. G., 2008, Accounting in and for the Subprime Crisis, The Accounting Review 83, 6, 1605
Schwarcz, S. L., 2004, Re-thinking the disclosure paradigm in a world of complexity, University of Illinois Law Review 1, 1-38
Shipper, K., and T. L. Yohn, 2007, Standard-setting issues and academic research related to the accounting for financial asset transfers, Accounting Horizons 21, 1, 59-80
Simon, D. T., and J. R. Francis, 1988, The effect of auditor change on audit fees: Tests of pricing cutting and price recovery, The Accounting Review 63, 2, 255-269
Simunic, D. A. 1980, The pricing of audit services: Theory and evidence, Journal of Accounting Research 18, 1, 161-190
Simunic, D. A. 1984, Auditing, consulting, and auditor independence, Journal of Accounting Research 22, 2, 679-702
Simunic, D.A., and M. T. Stein, 1987, Product differentiation in auditing: Auditor choice in the market for unseasoned new issues (Vancouver, B. C. The Canadian Certified General Accountants' Research Foundation)
Standard& Poor's, 2001& 2008, Corporate Rating Criteria, www.corporateratingcriteria.standardandpoors.com
Treacy, W. F., and Mark Carey, 1998, Credit risk rating at large US banks, Federal Reserve Bulletin 84, 897-921.

Table 1 Sample Means

	Pooled	Securitizers	Non-Securitizers	T-test*	2003	2004	2005	2006	2007	2008	2009
N	2,424	311	2113		426	411	393	330	302	286	276
Dependent Variable											
AUDIT_FEE($,000)	1,284.555	6,073.270	579.733	<.0001	682.882	1,046.842	1,204.970	1,445.312	1,510.448	1,658.200	1,854.968
LNAF	5.815	7.45	5.57	<.0001	5.209	5.656	5.792	6.039	6.080	6.128	6.13
Test Variables											
SAAMOUNT ($,000)	4,924,832	38,385,1820			2,336,614	2,942,561	3,772,070	5,828,4680	5,548,330	9,552,501	6,954,975
RIAMOUNT ($,000)	138,9460	1,082,969			73,082	66,691	69,938	106,777x	113,045	126,605	526,062
GOSAMOUNT ($,000)	41,743	324,833			38,310	46,085	36,132	58,195	56,676	42,2601	12,013
SARATIO	0.022	0.171			0.039	0.021	0.019	0.024	0.013	0.015	0.015
RIRATIO	0.001	0.005			0.001	0.001	0.000	0.000	0.000	0.001	0.001
GOSRATIO	-0.009	-0.07			0.013	0.017	0.010	0.016	0.016	-0.183	0.009
Control Variables											
TOTAL ASSETS ($,000)	26,929,327	169,932,506	5,881,533	<.0001	16,481,346	19,236,247	21,763,429	29,285,707	34,411,522	37,927,819	39,465,912
LNTA	14.682	16.962	14.346	<.0001	14.347	14.423	14.542	14.878	14.918	14.985	14.976
BIGN	0.491	0.807	0.445	<.0001	0.573	0.533	0.486	0.488	0.454	0.434	0.417
STDRET	0.322	0.117	0.352	<.0001	0.337	0.361	0.371	0.280	0.264	0.310	0.297
LOSS	0.108	0.116	0.107	0.668	0.009	0.024	0.018	0.012	0.060	0.315	0.471
CAPRATIO	13.592	15.098	13.370	0.011	14.106	13.871	13.577	13.388	12.675	13.311	13.939
TRANSACCT	0.570	0.580	0.569	0.276	0.595	0.599	0.579	0.552	0.548	0.517	0.576
SECURITIES	0.205	0.205	0.205	0.981	0.245	0.228	0.207	0.190	0.173	0.173	0.191
COMMLOAN	0.167	0.179	0.166	0.006	0.175	0.167	0.160	0.166	0.169	0.168	0.164
MTGLOAN	0.736	0.634	0.751	<.0001	0.715	0.732	0.744	0.737	0.741	0.744	0.749
INTANG	0.018	0.035	0.015	<.0001	0.013	0.016	0.018	0.022	0.024	0.019	0.016
CHGOFF	0.135	0.180	0.129	0.003	0.121	0.103	0.087	0.085	0.122	0.222	0.259
NONPERFORM	0.014	0.018	0.014	0.001	0.009	0.007	0.006	0.007	0.012	0.029	0.043
INEFFICIENCY	0.772	0.739	0.776	<.0001	0.726	0.727	0.738	0.766	0.795	0.850	0.855
SENSITIVE	0.089	0.144	0.081	<.0001	0.086	0.137	0.117	0.079	0.072	0.055	0.049
SENSITIVE* ΔINT	0.022	-0.002	0.025	0.120	-0.065	0.089	0.203	0.105	-0.030	-0.150	-0.067
INTDERIV	0.277	1.961	0.029	<.0001	0.258	0.227	0.237	0.301	0.317	0.296	0.347
SAVING	0.054	0.016	0.059	<.0001	0.070	0.063	0.064	0.045	0.040	0.038	0.040
Environmental data											
Ref. Interest Rate					1.240	1.890	3.620	4.940	4.530	1.830	0.470
ΔINT					-0.760	0.650	1.730	1.320	-0.410	-2.700	-1.360
NYSE FIN INDEX					5,148.45	6,874.44	7,889.40	8,893.39	10,745.00	9,394.92	4666.74
DFININDEX					0.335	0.154	0.105	0.202	-0.111	-0.511	0.239

Note:

1. Satterthwaite t test is used. This is an alternative to the pooled-variance t test and is used when the assumption that the two populations have equal variances seems unreasonable. It provides a t statistic that asymptotically (that is, as the sample sizes become large) approaches a t distribution, allowing for an approximate t test to be calculated when the population variances are not equal.

Table 2: Correlations
Panel A Pooled Sample (Securitizers and Non-securitizers N=2424)

	LNAF	LNTA	BIGN	STDR	LOSS	CAPR	TRAN	SECU	COMM	MTGL	INTA	CHGO	NONP	INEF	SENS	S* ΔINT	INTD	SAVI	SARA	RIRA
LNTA	**0.914**	**1**																		
BIGN	**0.584**	**0.537**	**1**																	
STDRET	**-0.606**	**-0.638**	**-0.446**	**1**																
LOSS	**0.089**	0.030	**-0.080**	-0.021	**1**															
CAPRATIO	**0.031**	-0.018	0.052	0.020	**-0.079**	**1**														
TRANSACCT	**0.119**	**0.124**	**0.209**	**-0.173**	**-0.173**	**0.105**	**1**													
SECURITIES	-0.004	0.028	**0.189**	-0.000	**-0.144**	**0.291**	**0.116**	**1**												
COMMLOAN	**0.182**	**0.163**	**0.197**	**-0.171**	**-0.060**	-0.036	**0.280**	-0.034	**1**											
MTGLOAN	**-0.429**	**-0.427**	**-0.339**	**0.257**	**0.106**	**-0.195**	**-0.234**	**-0.147**	**-0.661**	**1**										
INTANG	**0.418**	**0.399**	**0.240**	**-0.311**	**-0.072**	**0.353**	**0.177**	**-0.075**	0.035	**-0.197**	**1**									
CHGOFF	**0.140**	**0.109**	0.010	**-0.061**	**0.265**	-0.016	**-0.067**	**-0.079**	**0.075**	**-0.088**	0.023	**1**								
NONPERFORM	**0.140**	**0.082**	-0.051	0.002	**0.569**	**-0.077**	**-0.223**	**-0.107**	-0.052	**0.084**	**-0.057**	**0.296**	**1**							
INEFFICIENCY	**-0.056**	**-0.134**	**-0.178**	**0.171**	**0.574**	**-0.111**	**-0.224**	**-0.071**	**-0.010**	**0.144**	**-0.121**	**0.155**	**0.361**	**1**						
SENSITIVE	**0.196**	**0.201**	**0.171**	**-0.145**	**-0.066**	0.035	**0.273**	**-0.114**	**0.202**	**-0.208**	**0.086**	-0.002	**-0.089**	**-0.136**	**1**					
SENSITIVE*ΔINT	-0.049	**-0.067**	-0.050	0.025	**-0.110**	-0.039	-0.018	0.006	-0.049	0.047	0.004	**-0.087**	**-0.115**	-0.067	**-0.214**	**1**				
INTDERIV	**0.367**	**0.391**	**0.112**	**-0.086**	-0.014	-0.016	-0.023	**-0.075**	0.043	**-0.173**	**0.100**	0.015	0.048	-0.022	0.039	-0.018	**1**			
SAVING	**-0.086**	**-0.085**	-0.040	**0.111**	-0.012	0.027	-0.023	-0.026	**-0.115**	**0.172**	0.052	-0.006	-0.027	0.019	-0.042	0.002	-0.016	**1**		
SARATIO	**0.166**	**0.169**	**0.057**	**-0.056**	0.001	**0.055**	-0.005	-0.038	**-0.062**	-0.031	**0.153**	0.003	0.037	-0.024	0.048	-0.020	**0.107**	**0.058**	**1**	
RIRATIO	**0.228**	**0.230**	**0.120**	**-0.091**	0.039	**0.097**	**-0.066**	0.009	-0.035	**-0.140**	**0.117**	-0.003	**0.083**	**-0.059**	0.036	-0.023	**0.142**	-0.011	**0.264**	**1**
GOSRATIO	-0.017	-0.023	-0.010	0.005	**-0.064**	-0.009	-0.003	-0.005	-0.004	0.035	-0.034	-0.051	0.000	0.006	-0.000	0.024	0.029	0.013	0.023	-0.001

Panel B Securitizers N=311

	LNAF	LNTA	BIGN	STDR	LOSS	CAPR	TRAN	SECU	COMM	MTGL	INTA	CHGO	NONP	INEF	SENS	S* ΔINT	INTD	SAVI	SARA	RIRA
LNTA	**0.932**	**1**																		
BIGN	**0.575**	**0.581**	**1**																	
STDRET	**-0.458**	**0.526**	**0.501**	**1**																
LOSS	0.028	-0.035	-0.078	**0.140**	**1**															
CAPRATIO	0.048	-0.099	0.062	-0.031	-0.048	**1**														
TRANSACCT	0.058	0.106	0.079	-0.121	**-0.171**	**0.226**	**1**													
SECURITIES	**-0.220**	**-0.265**	-0.010	0.130	-0.106	**0.179**	**-0.166**	**1**												
COMMLOAN	**0.188**	**0.258**	**0.148**	-0.142	-0.058	-0.019	**0.244**	**-0.152**	**1**											
MTGLOAN	**-0.504**	**-0.463**	**-0.339**	**0.291**	0.121	**-0.430**	-0.083	0.028	**-0.356**	**1**										
INTANG	**0.292**	**0.192**	**0.186**	**-0.208**	-0.115	**0.731**	**0.353**	-0.111	0.043	**-0.386**	**1**									
CHGOFF	0.102	0.089	-0.042	0.063	**0.171**	0.024	-0.096	-0.073	0.081	-0.119	-0.008	**1**								
NONPERFORM	0.139	0.055	-0.096	0.251	**0.589**	-0.072	-0.268	-0.018	-0.124	**0.168**	-0.142	0.127	**1**							
INEFFICIENCY	-0.094	**-0.171**	**-0.300**	**0.228**	**0.540**	-0.096	**-0.165**	-0.044	-0.119	**0.148**	-0.133	0.022	**0.270**	**1**						
SENSITIVE	**0.357**	**0.404**	**0.287**	**-0.258**	-0.087	**0.204**	**0.475**	**-0.229**	**0.215**	**-0.305**	**0.279**	0.001	**-0.164**	**-0.178**	**1**					
SENSITIVE*ΔINT	-0.009	-0.048	-0.039	0.014	**-0.234**	-0.036	-0.036	0.023	-0.135	0.023	0.024	-0.011	**-0.232**	-0.061	**-0.033**	**1**				
INTDERIV	**0.529**	**0.523**	**0.145**	-0.100	-0.049	-0.059	-0.075	**0.218**	0.111	**-0.228**	0.036	-0.013	0.082	0.002	0.040	-0.025	**1**			
SAVING	0.065	0.068	-0.002	-0.043	-0.046	-0.028	-0.046	-0.099	**-0.209**	**0.182**	0.091	-0.045	0.041	-0.036	0.059	0.070	0.013	**1**		
SARATIO	0.064	0.033	-0.044	0.006	-0.006	0.028	-0.031	-0.111	**-0.298**	0.094	**0.126**	-0.041	0.051	-0.004	0.084	-0.033	**0.032**	**0.397**	**1**	
RIRATIO	**0.179**	0.136	**0.165**	-0.113	0.105	0.078	**-0.187**	0.026	**-0.197**	-0.140	0.050	-0.062	**0.182**	-0.112	0.026	-0.038	0.062	0.050	**0.192**	**1**
GOSRATIO	-0.014	-0.022	-0.016	0.002	**-0.017**	-0.008	-0.007	-0.014	-0.011	0.066	-0.047	-0.126	0.008	0.012	0.004	0.066	0.037	0.055	0.030	0.003

Panel C Non-Securitizers N=2113

	LNAF	LNTA	BIGN	STDR	LOSS	CAPR	TRAN	SECU	COMM	MTGL	INTA	CHGO	NONP	INEF	SENS	S* ΔINT	INTD	SAVI
LNTA	**0.869**	**1**																
BIGN	**0.564**	**0.507**	**1**															
STDRET	**-0.640**	**-0.703**	**-0.411**	**1**														
LOSS	**0.115**	0.048	**-0.086**	-0.037	**1**													
CAPRATIO	**-0.105**	**-0.109**	0.020	**0.098**	**-0.130**	**1**												
TRANSACCT	**0.140**	**0.141**	**0.229**	**-0.181**	**-0.174**	0.051	**1**											
SECURITIES	0.055	**0.110**	**0.220**	-0.014	**-0.150**	**0.472**	**0.165**	**1**										
COMMLOAN	**0.192**	**0.161**	**0.197**	**-0.168**	**-0.061**	**-0.070**	**0.287**	-0.022	**1**									
MTGLOAN	**-0.317**	**-0.321**	**-0.296**	**0.213**	**0.110**	-0.006	**-0.273**	**-0.019**	**-0.737**	**1**								
INTANG	**0.360**	**0.367**	**0.201**	**-0.314**	**-0.070**	**-0.111**	**0.122**	**-0.072**	0.023	-0.032	**1**							
CHGOFF	**0.131**	**0.088**	-0.001	**-0.062**	**0.281**	**-0.064**	**-0.063**	**-0.080**	**0.072**	**-0.063**	0.009	**1**						
NONPERFORM	**0.119**	**0.053**	**-0.067**	-0.008	**0.567**	**-0.126**	**-0.219**	**-0.120**	-0.049	**0.094**	**-0.066**	**0.320**	**1**					
INEFFICIENCY	-0.004	**-0.097**	**-0.150**	**0.152**	**0.582**	**-0.150**	**-0.232**	**-0.074**	**-0.095**	**-0.127**	**-0.103**	**0.182**	**0.382**	**1**				
SENSITIVE	**0.150**	**0.150**	**0.142**	**-0.119**	**-0.065**	-0.040	**0.250**	**-0.102**	**0.198**	**-0.181**	0.021	-0.009	**-0.089**	**-0.125**	**1**			
SENSITIVE*ΔINT	-0.046	**-0.063**	-0.044	0.020	**-0.091**	-0.049	-0.014	0.004	-0.040	0.044	0.011	**-0.097**	**-0.096**	**-0.071**	**-0.233**	**1**		
INTDERIV	**0.378**	**0.439**	**0.217**	**-0.217**	0.031	-0.007	-0.001	0.026	0.134	**-0.186**	**0.081**	**0.074**	0.021	-0.015	0.138	-0.038	**1**	
SAVING	**-0.083**	**-0.084**	-0.027	**0.109**	-0.009	**0.073**	-0.019	-0.021	**-0.108**	**0.167**	**0.080**	0.001	-0.027	0.018	-0.041	0.005	-0.035	**1**

Note: Numbers in bold are significant at the 1 percent level.

Table 3 Regression results for the basic model estimated for the pooled sample and years

	Fields et al. (2004)		Pooled		By Year						
Variable	Sign	p-value	Fields Model	Model 1	2003	2004	2005	2006	2007	2008	2009
Intercept	+	<0.01	-3.96***	-3.07***	-4.83***	-3.05***	-2.99***	-2.99***	-1.63**	-2.22***	-1.88***
LNTA	+	<0.01	0.61***	0.55***	0.59***	0.53***	0.54***	0.55***	0.52***	0.54***	0.53***
BIGN	+	<0.01	0.42***	0.44***	0.36***	0.53***	0.52***	0.42***	0.41***	0.42***	0.37***
STDRET	+	>0.10	-0.12*	-0.21***	0.02	-0.45***	-0.30***	-0.30***	-0.18**	-0.08	-0.21***
LOSS	+	>0.10	-0.04	-0.01	-0.50**	-0.06	-0.05	0.07	0.29**	0.10	0.00
CAPRATIO	+	<0.05	0.02***	0.02***	0.03***	0.02**	0.01	0.03***	-0.01	0.02*	0.03***
TRANSACCT	+	<0.05	0.12	0.15*	0.46**	0.37**	0.22	0.16	-0.15*	0.00	-0.26
SECURITIES	+	<0.01	-0.43**	-0.30*	-0.95***	-0.53**	-0.28	-0.23	0.40*	0.13	0.02
COMMLOAN	+	<0.01	-0.37*	-0.38*	-0.28	-0.31	-0.43	-0.37	-0.46	-0.38	-0.43
MTGLOAN	+	<0.05	-0.66***	-0.68***	-0.47**	-0.50**	-0.46**	-0.62***	-0.73***	-0.65**	-0.90***
INTANG	+	<0.01	2.63***	2.69***	4.26***	4.70***	3.62***	1.49	2.14**	0.59	0.75
CHGOFF	+	<0.10	0.12**	0.12**	0.34***	0.27**	0.18	0.18	0.31***	0.00	0.07
NONPERFORM	+	<0.01	5.66***	5.10***	7.09***	5.00*	11.02***	4.99*	-0.66	5.21***	5.77***
INEFFICIENCY	+	<0.01	0.63***	0.58***	1.40***	1.19***	1.12***	0.83**	0.53*	0.15	0.29**
SENSITIVE	-	>0.10	0.03								
SENS* ΔINT				0.03	0.09	-0.07	0.06	0.12	-0.71**	-0.06	-0.12
INTDERIV				0.19***	0.13***	0.15***	0.16***	0.19***	0.22***	0.24***	0.26***
SAVING	+	<0.05	-0.02	-0.02	0.02	-0.06	-0.15*	0.03	0.04	0.07	-0.06
Y2004			0.43***	0.44***							
Y2005			0.52***	0.53***							
Y2006			0.52***	0.55***							
Y2007			0.50***	0.54***							
Y2008			0.42***	0.47***							
Y2009			0.35***	0.40***							
CHOW TEST			F-Stat	F-Stat							
			1.82**	1.85***							
N	277		2424	2424	426	411	393	330	302	286	276
Adj. R-square	0.877		0.880	0.886	0.848	0.889	0.888	0.885	0.879	0.881	0.912
F-stat.			849.77	853.60	149.07	206.37	195.60	158.47	137.41	133.33	179.11

Due to directional predictions, all the results reported in this paper are one tailed.
The Chow Tests indicate the difference of the model structure before and after GFC with the break point as 2007.

*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).

Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIENCY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Table 4: Audit Effort and Asset Securitizations, for the Pooled Sample, and the Yearly Samples

Panel A: Adding SARATIO, RIRATIO and GOSRATIO into the regression

	Pooled						2003	2004	2005	2006	2007	2008	2009
Variable	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef	Coef	Coef	Coef	Coef	Coef	Coef.
SARATIO	0.03	0.175			0.06	0.023	0.00	0.18	0.21	0.00	-0.73**	-0.32	-0.78**
RIRATIO	**3.40**	**0.028**			0.98	0.342	7.04*	2.27	4.75	2.21	4.78	7.51*	5.93*
GOSRATIO	0.01	0.001			0.01	0.013	-0.16	-0.06	-0.26	0.20	0.19	0.00	-0.07
PGFC			0.40	<.0001	0.41	<.0001							
SARATIO*PGFC					**-0.50**	**0.011**							
RIRATIO*PGFC					**6.08**	**0.029**							
Year Effect Controlled	v		v		v								
CHOW TEST	F-Stat	p-value	F-Stat	p-value	F-Stat	p-value							
	1.49	0.027	1.50	0.029	1.61	0.011							
N	2423						426	411	393	330	302	286	275
Adj. R-square	0.885		0.885		0.869		0.847	0.889	0.888	0.884	0.879	0.881	0.909
F-Stat.	746.56		847.48		692.68		125.23	173.03	164.01	132.80	116.35	112.47	144.39

Panel B: Adding SARATIO or RIRATIO individually into the regression

Variable	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
SARATIO	**0.05**	**0.059**	0.06	0.011				
RIRATIO					**3.68**	**0.012**	2.28	0.137
PGFC			0.41	<.0001			0.41	<.0001
SARATIO*PGFC			**-0.40**	**0.051**				
RIRATIO*PGFC							**3.32**	**0.093**
Year Effect Controlled	v		**v**		v		**v**	
N	2423				2423			
Adj. R-square	0.885		0.885		0.885		0.885	
F-Stat.	810.77		777.94		811.75		778.90	

Due to directional predictions, all the results reported in this paper are one tailed.
The Chow Tests indicate the difference of the model structure before and after GFC with the break point as 2007.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).

The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIENCY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Table 5: The Impact of Asset Securitization on Audit Pricing Relative to On-Balance-Sheet Credit Risks

			Asset Structure						Asset Quality							
Variable	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
SARATIO	0.07	0.007	0.06	0.018	-0.72	0.138	-0.22	0.390	0.03	0.308	-0.00	0.483	0.05	0.062	0.06	0.015
RIRATIO	1.35	0.368	2.30	0.289	18.12	0.077	-0.70	0.482	3.02	0.169	3.16	0.365	3.62	0.012	2.01	0.162
GOSRATIO	0.01	0.002	0.00	0.031	0.01	0.003	0.01	0.011	0.01	0.001	0.00	0.040	0.00	0.012	0.00	0.019
PGFC			0.41	<.0001			0.41	<.0001			0.41	<.0001			0.41	<.0001
SA*PGFC			-0.51	0.352			0.12	0.466			-0.89	0.001			-0.29	0.172
RI*PGFC			-53.40	0.059			70.64	0.052			11.66	0.141			4.57	0.067
SA*COMMLOAN	-1.69	0.115	0.22	0.454												
RI*COMMLOAN	21.34	0.218	-10.58	0.381												
SA*COMM*PGFC			0.09	0.495												
RI*COMM*PGFC			**364.77**	**0.043**												
SA*MTGLOAN[1]					0.84	0.122	-0.17	0.420								
RI*MTGLOAN					-20.60	0.126	1.85	0.463								
SA*MTGLOAN*PGFC							-1.19	0.278								
RI*MTGLOAN*PGFC							**-103.47**	**0.064**								
SA*NONPERFORM[3]									0.71	0.444	5.11	0.251				
RI*NONPERFORM									0.44	0.420	-131.10	0.376				
SA*NONP*PGFC											5.74	0.301				
RI*NONP*PGFC											2.07	0.498				
SA*CHGOFF[4]													-0.64	0.132	0.57	0.319
RI*CHGOFF													0.89	0.468	-24.80	0.175
SA*CHGOFF*PGFC															-1.30	0.139
RI*CHGOFF*PGFC															31.45	0.130
Year Effect Controlled	v		v		v		v		v		v		v		v	
N	2423															

Due to directional predictions, all the results reported in this paper are one tailed.
The Chow Tests indicate the difference of the model structure before and after GFC with the break point as 2007.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).
The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIENCY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Table 6 Robustness Analysis

Panel A Matched Pair Sample and Securitizer Subsample

Variable	Matched Pair Sample		Securitizer-only Subsample	
	Coef	Coef	Coef	Coef
SARATIO	-0.02	0.03	0.01	0.03
RIRATIO	1.16	-0.60	0.23	-2.57
GOSRATIO	0.00	0.01	0.01**	0.01**
PGFC		**0.14*** **		**0.20***
SARATIO*PGFC		**-0.42***		**-0.59*** **
RIRATIO*PGFC		**6.53***		**8.41** **
Year Effect Controlled			v	**v**
N	560		310	
Adj. R-squared	0.888	0.890	0.926	0.927

Due to directional predictions, all the results reported in this paper are one tailed.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).
The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIEN CY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Panel B Model (2) CAMELS Model Results

	Pooled	
Variable	Coef.	Coef.
SARATIO	0.05	0.07***
RIRATIO	**4.22****	1.62
GOSRATIO	0.00**	0.00
PGFC		0.42***
SARATIO*PGFC		**-0.43****
RIRATIO*PGFC		**6.43***
Year Effect Controlled	**v**	**v**
N	2423	
Adj. R-square	0.881	0.882
	943.33	854.82

Due to directional predictions, all the results reported in this paper are one tailed.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).
The base model is Model (2):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 CAPRATIO + \beta_5 CHGOFF + \beta_6 NONPERFORM + \beta_7 INEFFICIEN CY + \beta_8 SECURITIES + \beta_9 SENS * \Delta INT + \beta_{10} INTDERIV + \mu$$

Table 7 Big N Auditors and Industry Specialists

Panel A big N auditors and Non-Big N Auditors

	Non-Big N Auditors		Big N Auditors	
Variable	Coef	Coef	Coef	Coef
SA	0.03	0.03	0.02	0.09
RI	570.07*	621.57**	3.84**	1.08
GOS	-5.68**	-6.03**	0.01***	0.00**
PGFC		0.36***		0.44***
SA*PGFC		**-1.74*** **		-0.41*
RI*PGFC		-8715.81***		**5.67***
Year Effect Controlled	**v**	v	**v**	**v**
N	1233		1190	
Adj. R-square	0.698	0.699	0.877	0.877

Note: For the Non-big N auditor subsample, there are high VIFs on RIRATIO, GOSRATIO and interaction terms.
Due to directional predictions, all the results reported in this paper are one tailed.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).
The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIEN CY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Panel B Industry Specialists

	Auditor Name	Number of Audits	Ave. Total Assets per Client ($'000)	Total Assets under Audits ($,000)
1	PWC	176	141,279,463	24,865,185,549
2	ERNST & YOUNG	293	28,856,149	8,454,851,764
3	DELOITTE & TOUCHE	179	32,383,040	5,796,564,097
4	KPMG	543	44,661,307	24,251,089,882
6	GRANT THRONTON	97	3,041,260	295,002,225
7	BDO	25	2,336,364	58,409,099
8	CROWE CHIZEK & COMPANY LLP	154	1,397,032	215,142,851
9	OTHERS	957	1,400,673	1,340,443,846
Total		2424		65,276,689,313

Variable	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
PWC	0.07	0.05	0.05			
KPMG				0.01	0.01	**0.01**
BIGN	**0.43*** **	**0.43*** **	**0.43*** **	**0.44*** **	**0.43*** **	**0.43*** **
SARATIO	0.04	0.04	0.06***	0.03	0.03	0.05*
RIRATIO	2.78*	0.76	0.16	3.43**	3.71**	1.83
GOSRATIO	0.01***	0.01***	0.00**	0.01***	0.01***	0.00**
SA*PWC		0.15	0.15			
RI*PWC		2.04	-0.18			
SA*KPMG					0.08	0.17**
RI*KPMG					-21.05*	-33.56***
PGFC			0.41***			0.41***
SA*PGFC			-0.59***			-0.45*
RI*PGFC			7.68			4.99*
SA*PWC*PGFC			1.10			
RI*PWC*PGFC			-4.16			
SA*KPMG*PGFC						-0.37
RI*KPMG*PGFC						49.66***
Year Controlled	V	V	V	V	V	V
N	2423					
Adjusted R^2	0.885	0.885	0.885	0.885	0.885	0.885

Note: For the Non-big N auditor subsample, there are high VIFs on RIRATIO, GOSRATIO and interaction terms.
Due to directional predictions, all the results reported in this paper are one tailed.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).
The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIENCY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Table 8 Large and Largest BHCs

Panel A Small and Large BHCs as Divided from the Median Total Assets

	Large BHCs		Small BHCs	
Variable	Coef	Coef	Coef	Coef
SA	-0.01	0.07	0.04	0.04
RI	3.66**	0.95	-114.11	468.35**
GOS	0.01***	0.01***	76.52	59.21
PGFC		0.50***		0.34***
SA*PGFC		-0.44**		-16.88***
RI*PGFC		5.58*		-667.71***
Year Effect	**v**	v	**v**	v
N	1211		1212	
Adj. R-square	0849	0.849	0.606	0.606

For the Non-big N auditor subsample, there are high VIFs on RIRATIO, GOSRATIO and interaction terms.
Due to directional predictions, all the results reported in this paper are one tailed.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).
The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIEN CY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Note:
1. High standard errors on RIRATIO, GOSRATIO, and RIPGFC for the pooled sample, before-GFC subsample and during-GFC subsample.
2. For the during-GFC subsample, all the observations have GOSRATIO of zero.

Panel B Top 500 Largest BHCs and other BHCs, by Total Assets

	Top 500 Largest BHCs		Other BHCs	
Variable	Coef	Coef	Coef	Coef
SA	-0.04	0.04	0.05***	0.05***
RI	2.99	-0.46	6.58	7.31
GOS	0.01***	0.01**	0.63*	0.64*
PGFC		0.40***		0.42***
SA*PGFC		-0.52**		-1.14***
RI*PGFC		6.97*		-54.04
Year Effect	**v**	v	**v**	v
N	499		1924	
Adj. R-square	0.832	0.833		0.752

JPM 2009 is excluded from this test, which reduces the number of top500 largest BHCs to 499.

Note: For the Non-big N auditor subsample, there are high VIFs on RIRATIO, GOSRATIO and interaction terms.
Due to directional predictions, all the results reported in this paper are one tailed.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).
The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIEN CY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Table 9 BHCs Related to Failed Banks

Panel A Distribution of BHCs Related to Failed Banks

	Number of BHC-year Related to failed banks	Total Number of BHC-year Observations
Securitizers	21 (6.75%)	311
Non-Securitizers	136 (6.44%)	2113
Total	157	2424
	Number of BHCs Related to Failed Banks	Total Number of BHCs
Securitizers	6 (6.90%)	87
Non-Securitizers	21(5.75%)	365
Total	27	452

Panel B Comparative Descriptive Statistics

		Survivors	Failed BHCs
N		2267	157
Dependent Variable			
LNAF	Mean	5.82	5.80
Control Variables			
LNTA	Mean	14.69	14.45
BIGN	Mean	0.49	0.48
STDRET	Mean	0.32	0.32
LOSS	**Mean**	**0.10**	**0.26**
CAPRATIO	**Mean**	**13.47**	**12.05**
TRANSACCT	Mean	0.58	0.44
SECURITIES	Mean	0.21	0.15
COMMLOAN	Mean	0.17	0.11
MTGLOAN	**Mean**	**0.73**	**0.84**
INTANG	Mean	0.02	0.01
CHGOFF	**Mean**	**0.13**	**0.22**
NONPERFORM	**Mean**	**0.01**	**0.03**
INEFFICIENCY	Mean	0.76	0.84
SENSITIVE* ΔINT	**Mean**	**0.02**	**0.06**
INTDERIV	**Mean**	**0.13**	**0.08**
SAVING	Mean	0.05	0.04
SARATIO	Mean	0.02	0.01
RIRATIO	Mean	0.00	0.00
GOSRATIO	**Mean**	**-0.01**	**0.01**
INV_SECU	Mean	0.21	0.15

Panel C Regression Results

					Survivors		Failed	
Variable	Coef	Coef	Coef	Coef	Coef		Coef	
Failed Bank	0.11*	0.11*	0.11*	0.11*				
SA		0.04		0.07**	0.03	0.06**	0.47	-1.51**
RI		3.66**		1.16	3.38**	0.43	5.05	23.27***
GOS		0.01***		0.01***	0.01***	0.00**	1.00***	1.35***
PGFC			0.46***	0.47***		0.44***		0.02
Failed*PGFC			0.01	0.01				
SA*PGFC				-0.47**		-0.54***		12.16*
RI*PGFC				6.27**		6.92**		89.53
Year Controlled	v	v	v	v	v	v	v	v
N	2423				2266		157	
Adj. R-square	0.884	0.884	0.885	0.885	0.890	0.890	0.803	0.786

Note: For the Non-big N auditor subsample, there are high VIFs on RIRATIO, GOSRATIO and interaction terms.
Due to directional predictions, all the results reported in this paper are one tailed.
*, **, *** denote significance at the 0.10, 0.05 and 0.01 levels, respectively (One-tailed test).

The based model used is Model (1):

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIENCY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Appendix 1 Accounting Treatments under FAS140, FAS156 and FAS166

Panel A Accounting treatments under FAS 140, FAS 156 and FAS 166

Fair Values		
Cash proceeds	$	1,000
Servicing asset		40
Interest-only strip receivables		60

FAS 140 before Revision

Carrying amounts based on the relative fair values $

	Fair value	Pct of total fair value	Allocated carrying amount
Loans sold	1000	91%	910
Servicing asset	40	3.6	36
Interest-only strip receivables	60	5.4	54
Total	1100	100	1000

Gains on sale

Net proceeds	$	1000
Carrying amount of loans sold		910
Gains on sale		90

FAS 156

Carrying amounts based on the relative fair value $

	Fair value	Pct of total fair value	Allocated carrying amount
Loans sold	1040	94.55	945.5
Interest-only strip receivables	60	5.45	54.5
Total	1100	100	1000

Gains on sale

Net proceeds	$	1040
Carrying amount of loans sold		945.5
Gains on sale		94.5

FAS 166

Net Proceeds $

Cash proceeds		1000
servicing assets		40
Interest-only strip receivables		60
Net proceeds		1100

Gains on sale

Net proceeds	$	1100
carrying amount of loan sold		1000
Gains on sale		100

Note: as required in FAS 166 and FAS 167, the concept of QSPE was deleted. In most situations, the SPE financial report should be consolidated with the transferor's report. Therefore, there is no effect of sale accounting to the consolidated reports.

Panel B: Comparison of Sale accounting and Borrowing Accounting

(1) We assume that Bank A initially has loan assets of $4,000, consisting of half of its total assets. As a bank meeting the capital requirements, Its owner's equity is $640, 8% of total assets. Its ROI before the securitization is 10% (the example case is established based on the statistics from our 2006 BHC data).

Initial Balance Sheet		**leverage(D/E ratio): 11.5**	
Other assets	$4,000	Liabilities	$7,360
Loans	$4,000	Owner's equity	$640
total assets	$8,000	Liabilities & Equity	$8,000

(2) Bank A securitizes 25% of the loans via a QSPE (Before FAS 156); the transaction is qualified as a sale according to FAS 140.

The balance sheet after the securitization leverage: 10

Cash	$1,000	Liabilities	$7,360
Loans	$3,000		
servicing asset	$36		
Interest-only strip	$60		
Other assets	$4,000	equity	$736
Total assets	$8,096	Liabilities & Equity	$8,096

The income statement after the securitization

Net income other than securitization	$64
Gains on securitization	$90
Other comprehensive income	$6
	$160

(3) Bank A securitizes 25% of the loans via a QSPE (after FAS 156), qualifying a sale accounting according to FAS140 and FAS 156.

The balance sheet after the securitization

Cash	$1,000	Liabilities	$7,360
Loans	$3,000		
servicing asset	$40		
Interest-only strip	$60		
Other assets	$4,000	equity	$740
Total assets	$8,100	Liabilities & Equity	$8,100

The income statement after securitization

net income other than securitization	$64
Gains on securitization	$95
Other comprehensive income	$6
	$164

(4) The transaction in (2) and (3) are recorded as a secured borrowing.

The balance sheet after the securitization leverage: 13.06

cash	$1,000	liabilities	$8,360
loans	$3,000		
securities pledged to creditors	$1,000		
other assets	$4,000	equity	$640
total assets	$9,000	liabilities & equity	$9,000

And there is no effect of a secured borrowing on the income statement.

Appendix 2: Supporting Figures

Figure 1: The Impact of BHC Reporting Threshold (Total assets > $150M before 2006 and >$500M after 2006)

		Pooled Sample	2003	2004	2005	2006	2007	2008	2009
No. of Observations		2424	426	411	393	330	302	286	276
TA<$500M	N	258	93	75	59	10	8	6	7
	Mean SAAMOUNT $'000	11,027	29,199	981	945	0	0	0	0
TA>$500M	N	2166	333	336	334	320	294	280	269
	Mean SAAMOUNT $'000	5,510,132	2,981,027	3,599,163	4,438,226	6,010,608	5,699,305	9,757,197	7,135,959

Note: all sampled BHCs have total assets larger than $150M.

Figure 2: The Sampling Procedure

	2003	2004	2005	2006	2007	2008	2009	2003-2009
Step 1: Bank-year end observations from Bank Regulatory Database	5764	5754	5745	5709	5669	5537	5434	39612
Step 2: Delete observations with missing values on total asset	2185	2301	2310	986	966	973	1015	10736
Step 3: Matching with CRSP-BHC link; after this step, only listed BHCs are left*	469	440	424	347	322	306	300	2608
Step 4: Matching with Audit Fee Data	426	411	393	330	302	286	276	2424
PCT of listed BHCs included in this study	**91%**	**93%**	**93%**	**95%**	**94%**	**93%**	**92%**	**93%**

* There are 297 BHC names with CRSP-link but not in Y9C reports. These BHCs belong to the following two situations: 1) this BHC was merged into other BHC before 2003, so this BHC no longer existed, or 2) this BHC changed its name and ID in Stock Exchange before 2003, so this BHC did exist, but existed in another name and ID.

Note:

- In the sampling process, we analyze each case when a control variable is of a missing value;
- An observation has CAPRATIO of 1155. We identify it as an input error and correct it to 11.55.

Appendix 3: Models and Variable Definitions

Model (1)

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 LOSS + \beta_5 CAPRATIO + \beta_6 TRANSACCT + \beta_7 SECURITIES + \beta_8 COMMLOAN + \beta_9 MTGLOAN + \beta_{10} INTANG + \beta_{11} CHGOFF + \beta_{12} NONPERFORM + \beta_{13} INEFFICIEN CY + \beta_{14} SENSITIVE * \Delta INT + \beta_{15} INTDERIV + \beta_{16} SAVING + \mu$$

Model (2)

$$LNAF = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 STDRET + \beta_4 CAPRATIO + \beta_5 CHGOFF + \beta_6 NONPERFORM + \beta_7 INEFFICIEN CY + \beta_8 SECURITIES + \beta_9 SENS * \Delta INT + \beta_{10} INTDERIV + \mu$$

Variable Definitions

Dependent Variable

LNAF = the natural logarithm of audit fee;

Test Variables

SARATIO = total outstanding securitized assets, deflated by total assets (Barth et al. 2011); and

RIRATIO = total retained interests, including retained interest only strips, retained credit enhancements, and unused commitments to provide liquidity (service advances), deflated by total assets (Barth et al. 2011);

GOSRATIO = the amount of gains on securitization, defined as the net securitization income (loss) deflated by net income;

PGFC = 1 for years after 2007 (inclusive), 0 otherwise.

Control Variables

LNTA = the natural logarithm of total assets;

BIGN = 1 when the incumbent auditor is a Big 4 auditor, 0 otherwise;

STDRET = the corresponding one-year standard deviation of daily stock returns;

LOSS = 1 when the BHC reports a loss, 0 otherwise;

CAPRATIO = risk-adjusted capital ratio, defined as total amount of bank regulatory capital divided by risk-weighted assets;

TRANSACCT = transaction accounts, including non-interest-earning demand deposit accounts (DDAs), interest-bearing checking accounts in NOW accounts, automatic transfer from savings (ATS) accounts, and Money Market deposit accounts (MMDAs), divided by total deposit;

SECURITIES = investment security assets, including held-to-maturity and available-for-sale securities, divided by total assets;

COMMLOAN = the proportion of commercial loans to gross loans. Commercial loans involve commercial and industrial loans, loans to depository institutions, acceptances issued by other banks, and agricultural loans;

MTGLOAN = mortgage loans/gross loans;

INTANG = intangible assets/total assets;

CHGOFF = net charge-offs/allowance for loan and lease losses;

NONPERFORM = non-performing loans/gross loans. Non-performance loans are defined as past due 90 days or more and nonaccrual loans, leases and other assets;

INEFFICIENCY = the management efficiency ratio, defined as the ratio of total operating expense (including total interest and non-interest expenses) to total revenue (including total interest and non-interest revenues);

SENSITIVE $*\Delta INT$ = on-balance-sheet interest rate risk measure, defined as (interest rate-sensitive assets - interest rate-sensitive liabilities)/total assets, all multiplied by interest rate change in the current year;

INTDERIV = the notional amount of interest rate derivatives divided by total assets;

SAVING = 1 when the BHC is a savings institution, 0 otherwise;

SENSITIVE = (interest rate-sensitive assets - interest rate-sensitive liabilities)/total assets;

Other Information

Ref. Interest Rate = market yield on U.S. Treasury securities at 1-year constant maturity, quoted on investment basis;

ΔINT = interest rate change in the current year, defined as changes in the market yield on U.S. Treasury securities at 1-year constant maturity, quoted on investment basis;

NYSE FIN INDEX = *NYSE financial sector index in the first business day of the current year;* market yield on U.S.;

DFININDEX = *Changes in NYSE Fin Index of the current year, defined as the difference between NYSE Fin Index of the first business day and the index of the last business day of the current year, deflated by the first day NYSE Fin Index.*