Bank Audit Fees and Asset Securitization Risks

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Abstract

Asset securitizations increase audit complexity and audit risks, which are expected to increase audit fees. Using US bank holding company data from 2003 to 2011, we find significant and positive associations between asset securitization risks and audit fees. After the commencement of the global financial crisis (GFC), there was an increased focus on the role of audits on asset securitization risks resulting from the crisis in the banking industry. Therefore, we expect that auditors would become more sensitive to banks' asset securitization risks after the commencement of the global financial crisis. We find that auditors appear to focus on different aspects of asset securitization risks after the onset of the crisis and that auditors appear to charge a GFC premium for banks.

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: G14, G21, M41

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I. INTRODUCTION

Auditors have been criticized in relation to their role in auditing asset securitizations in the form of mortgage-backed securities and collateralized debt obligations. During the emergence of the sub-prime mortgage problem through 2003–2005 and its eruption with the downturn in the US real estate market in 2006, substantial attention was given to accounting issues and valuation concerns with securitized assets (e.g., Karaoglu 2005; Niu and Richardson 2006; Shipper and Yohn 2007). This is exemplified by the public and political attention given to Fannie Mae in 2004 and related prosecutions in 2006. However, 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). 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 generated accusations that auditors did not take appropriate actions in response to asset securitization risks. In response to fraudulent misstatements regarding recourse or repurchase provisions, it was alleged that auditors helped or allowed companies to violate GAAP (e.g., New Century case[1]; see Kardos 2009). Moreover, auditors issued inappropriate opinions on banks with significant securitizations and overall insolvency issues (e.g., Lehman Brothers

1 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.

case 2007; see Richard 2008) and used inadequate audit processes (e.g., Fannie Mae scandal 2006). The 2011 House of Lords report on the UK audit market concludes that, although audit professionals deny audit failures in the banking industry surrounding the onset of the GFC, "the complacency of bank auditors was a significant contributory factor. Either they were culpably unaware of the mounting dangers, or, if they were aware of them, they equally culpably failed to alert the supervisory authority of their concerns." (p.46, House of Lords 2011).

The banking industry plays a critical role in the economy. As a result of its importance to the economy, there is a high level of public interest in the banking industry and the reliability of banks' audited financial reports. A considerable amount of public attention has been focused on the role of auditors in identifying asset securitization risks and their potential consequence during bank audits. Commensurate with this increased focus on bank audits, auditors' reputation and brand name have been subject to enhanced scrutiny, particularly for bank audits. In addition to regular external audits, banks are audited and supervised by the Federal Reserve, FDIC and other bank regulators. The strict regulatory requirements for the banking industry can decrease reporting irregularities, which increases reporting quality. One example of such a regulatory requirements that the FDICIA implemented in 1993 is the requirement for insured depository institutions with $500 million or more in total assets to prepare management reports on the effectiveness of internal control systems, compliance and procedures for financial reporting that these reports must have an assurance report provided by independent auditors. Studies find that the FDICIA has strengthened the economic viability of banks (Carnell 1997) leading banks to become more risk averse and less prone to failures (Benston and Kaufman 1998).

Prior audit fee studies find that audit fees are positively associated with financial risks. This is because higher levels of financial risk lead to higher levels of audit risk associated with going concern problems and management's motives and opportunities to discretionarily manipulate financial reporting. However, most prior studies consider the impact of on-balance sheet financial risk factors on audit fees. There has been little investigation of the impact of off-balance sheet financial risks on audit effort and audit fees. Compared with on-balance sheet financial risks, off-balance sheet financial risks are more difficult to identify, and off-balance sheet transactions are often more complex than on-balance sheet transactions and therefore harder to audit. Therefore, the study of off-balance sheet risks on audit effort and audit fees is an important area to study. The off-balance sheet financial risks we address in this study are the risks associated with asset securitizations. The criticisms of auditors' role in asset securitizations implies that auditors are suspected not focusing on these type of risks and therefore may not have priced them in audit fees. 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. 2012), the extent of risk transfers with recourse (Higgins and Mason 2004; Gorton and Souleles 2006; Chen et al. 2008), information uncertainty regarding risk transfer (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). The evidence of asset securitization risks in these studies and the public criticisms of auditors in relation to bank losses associated with asset securitizations since 2007 suggest that auditors should be attuned to these risks. If auditors respond to differences in asset securitization risks by adjusting their audit effort or risk premiums, then we should observe positive relations between asset securitization risks and audit fees. However, there is little or no research examining the link

between asset securitization risks to originating banks and their audit fees. We address this significant gap in our knowledge of audits by investigating whether there is a significant association between audit fees and asset securitization risks for listed US banks.

The outcome of this investigation is not obvious and the relation may have changed over time. Prior research suggests that bank audit fees are sensitive to the bank's business failure risk during the savings and loan crisis (Hill et al. 1994). The 2007 global financial crisis resulted in pervasive distress and failure in the banking industry, which may trigger auditors' sensitivity to business failure risks and be reflected in an increased audit fee. In addition, we argue that the variable nature 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 asset securitizations as asset sales or borrowings (Kane 1997; Shipper and Yohn 2007) may make it difficult for auditors to identify 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). These challenges and auditors' limitations also affect auditors' business risk and inherent risk considerations in audit planning and pricing (Houston et al. 1999; Phillips 1999; Beaulieu 2001). If auditors focus on maintaining audit quality, higher securitization risk should induce increased audit effort, resulting in higher audit fees.[2]

The issuance of FAS 166 and FAS 167 in 2009 largely limited the scope of sales accounting and non-consolidation of asset securitizations. Correspondingly, management's opportunities

[2] 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, which also results in higher audit fees. The available data do not allow us to test these competing sources of differences in audit fees.

for using asset securitization transactions for manipulation purposes have also been greatly eliminated. Under FAS 166 and FAS 167, although securitization risks are still a noticeable audit risk source, the risk should have been restricted to its complexity, resulting in a changing audit pricing pattern with regard to asset securitization transactions.

The expected relation between securitization risks and audit fees allows us to use the established audit fee modeling methods to investigate whether auditors respond to differences in risks arising from asset securitizations, and whether auditor behavior changed as a result of the global financial crisis.[3] To do so, we extend the bank audit fee model in Fields et al. (2004) to include asset securitization risk measures. Consistent with Cheng et al. (2011), we measure asset securitization risks using principal component factors generated from the ratios of securitized assets to total assets, retained interests to total assets, gains from securitizations to net income, non-performing securitized loans to total assets, and the charge-offs for securitized loans to total assets. We identify two significant factors: one relates to balance sheet aspects of asset securitization risks, and the other relates to income statement aspects of asset securitization risks.

Using publicly available US bank holding company (BHC) data from 2003 to 2011, we find significant and positive associations between asset securitization risks and audit fees.[4] It is reasonable to expect that auditors would become more sensitive to banks' asset securitization risks following criticisms of their role in bank failures and the financial downturn that

[3] 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 audit fee studies specifically exclude financial institutions from their analyses because of the attendant accounting and risk differences compared to other sectors. As a result, there is relatively little research on audit effort and pricing in the banking industry.

[4] Our sample period finishes at the end of 2011. After 2009, accounting regulations changed significantly with the issuance of FAS 166 and FAS 167.

commenced in 2007. Consistent with this proposition, we find that audit fees reflect securitization risks both before and after the onset of the GFC, but the relations change with the start of the GFC. Pre-GFC, both the composite balance sheet and income statement measures of asset securitization risk are significantly associated with audit fees. However, during the GFC, the effect of the composite measure of the balance sheet aspect of asset securitization risk is only marginally significant and the effect of the income aspect of asset securitization risk, while significant, decreased in its magnitude. In additional tests, we replace the composite measures of securitization risk with the individual asset securitization risk factors. Pre-GFC, there is a significant association between each of the four asset securitization measures and audit fees. However, during the GFC, only retained interests and securitization income are significantly associated with audit fees. With the implementation of FAS 166 and FAS 167, audit risks embedded in asset securitization transactions were significantly reduced. Correspondingly, both the composite balance sheet and income statement measures of asset securitization risk are not significant in audit pricing for the 2010-2011 period; and the individual asset securitization risk factor test suggests retained interests and underlying credit quality are still important for bank auditors. Overall, our results suggest that auditors actively changed their audit risk considerations on asset securitization transactions as a result of the changing economic and regulatory environments.

Asset securitizations are economically significant sources of audit risk, as revealed by the financial crisis and bank failures. Therefore, evidence concerning whether auditors take account of asset securitizations risks is an important contribution to the auditing literature. Our evidence that auditors respond to asset securitization risks, as reflected in audit fees, both before and after the onset of the GFC and that their behavior changes in response to changes in market and regulatory conditions counters criticisms that auditors did not consider asset

securitization risks when conducting bank audits.

Our study contributes to the emerging literature on bank audits, which is a growing area of policy interest since the Basel Committee on Bank Supervision (Basel 2008) called for more research on bank audits in areas of particular interest to bank regulators and important to financial markets. Since Fields et al. (2004), several studies have examined audit pricing in financial institutions and find that audit fees are strongly and positively related to the risks and complexity of bank audits (e.g. Boo and Sharma 2008, Ettredge et al. 2011, Doogar et al. 2012). However, none of them has focused on off-balance sheet financial risks.

Our study also extends the literature on the effectiveness of bank audits surrounding financial crises. Hill et al. (1994) find evidence that audit fees are positively associated with clients' failure risk and litigation involvement, which provides some evidence to counter the criticism of audit failures of Savings and Loan institutions during the 1983-1988 Savings and Loan crisis period. Our results are consistent with Hill et al. (1994) in this respect. However, without a pre and post comparison, Hill et al. (1994) cannot explicitly identify changes in auditors' pricing behavior with the onset of the crisis in general and on specific risk factors. Our study addresses general audit fee changes and changes in specific fee premiums associated with asset securitizations because of the GFC by comparing pre-GFC and during-GFC periods. In addition, the asset securitization risks studied in this paper are major contributing factors leading to the GFC; while the business failure risks and litigation concern studied in Hill et al. (1994) are the business outcomes generated by the financial crisis. Although auditors are not required to predict business failures, market participants anticipate predictive information from auditors' reports (Knechel et al. 2012). Therefore, whether auditors are able to identify forward-looking risk factors is critical to enhancing

market-expected audit quality.

Doogar et al. (2012) find that during 2005-2007 auditors appear to shift their audit attention on on-balance sheet items in line with the unfolding economic shocks, suggesting that auditors can recognize and respond to the entity-level implications of crisis-related events. Although both our study and Doogar et al. (2012) treat the GFC as a study event and investigate financial risk factors and bank audit fees, Doogar et al (2012) focus on on-balance sheet loan default and retention risks, and only consider the on-balance sheet portion of mortgage-related asset securitization risk. In comparison, our study focuses on comprehensive securitization risks, including on-balance sheet retained interests, overall securitization transaction level (mostly off-balance sheet), underlying credit quality, and earnings performance, covering both mortgage-related and other asset-backed securitization transactions. Although the GFC started from the subprime mortgage crisis, and mortgage loans and associated securitizations are important in the pre-GFC and during-GFC periods, based on our data, mortgage related retained interests are only 19% of the total retained interests. Therefore, we believe other types of loans cannot be neglected in studies on asset securitizations and on the GFC. In addition, our study period covers the periods before the GFC, during the GFC and after the implementation of FAS 166 and 167; while Doogar et al. (2012) only examine the years leading to the GFC until 2007. Our results provide recent evidence consistent with the results reported in Hill et al. (1994) concerning auditors' response to business risk factors during crisis periods and consistent with Doogar et al. (2012) that auditors actively adjust attention to risk factors with the occurrence of the GFC.

The remainder of this paper is organized as follows. Relevant research is reviewed in Section II and hypotheses are developed in Section III. Section IV describes the research design and

Section V reports the main results. Robustness and additional tests are reported in Section VI. Section VII concludes the study.

II. BACKGROUND

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) that is usually organized as a 'qualifying special purpose entity' (QSPE) to avoid consolidation in the bank's accounts. The SPE then securitizes the assets 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 usual securitization strategy is to maximize the size of the most senior tranche while still obtaining a AAA rating, and to leave the first (most junior) tranche 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

[5] We don't consider situations where a retained junior tranche is re-securitized to a 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.

generated by the underlying securitized assets to the investors, as specified in the security.

Accounting choices

The bank's main accounting choice in relation to the securitization of financial assets is whether the initial transfer to the SPE is treated as a sale or as borrowing. For the years from 2003 to 2009, the accounting treatment was determined under FAS 140 (2003 to 2006) and FAS 156 (after 2006).[6] Treating the transaction as a sale 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 other than sub-securities (e.g., servicing assets) in the same way as retained sub-securities under FAS 140 or at fair value under FAS 156; and (5) record the difference between net cash proceeds and the value of the components of assets sold as a gain or loss (Cheng et al. 2011). For a securitization to qualify as an asset sale, the transferor must transfer the financial assets to a bankruptcy-remote entity and surrender control 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 loans are taken off the balance sheet and the bank recognizes any retained interests (including servicing assets) on its balance sheet; unrealized future cash flows are treated as a gain or loss in the

[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 from FAS 140 to FAS 156 had a very limited impact on the sale versus borrowing accounting choice. The required change of fair value measurement to servicing assets in FAS 156 has limited affect our study because servicing assets represent a small portion of retained interests and are not a focus of our study. Effective from November 2009, FAS 166 and FAS 167 largely limit the scope of accounting for asset securitization as sales.

current income statement. Compared with secured borrowing accounting, sale accounting has the effect of dressing up reported leverage, liquidity, earnings, and the capital ratio. Effective from November 2009, FAS 166 and FAS 167 amend FAS 140 and FIN 46R by: (1) removing the concept of a QSPE in FAS 140, and removing the consolidation exemption for QSPEs that was in FIN 46R; (2) introducing the "continuing involvement" approach and the "participating interest" criteria, shares of cash flows correspond to shares of ownership, and the de-recognition is denied if the transferor continues to have certain involvement with the transferred assets; and (3) all assets (including retained interests) and liabilities incurred in a securitization transaction accounted for as a sale are to be initially measured at fair value. Therefore, QSPE ceased to be a passport to non-consolidation in asset securitizations after November 2009, and asset securitization transactions will not normally be recognized as sales after the implementation of FAS 166. As a consequence, accounting for asset securitizations as sales and the non-consolidation of securitization-related SPEs have mostly been eliminated by FAS 166 and FAS 167.

The economic substance of asset securitizations

Before the reformation of securitization accounting rules that resulted in FAS 166 and FAS 167, the general view of standard setters and regulators was to treat asset securitization as a sale with the appropriate transfer of risks (FAS 140; FIN 46R). Although rating agencies claim they treat asset securitizations as secured borrowings 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 treat asset securitizations as sales (Cheng and Neamtiu 2009; Barth et al. 2012). In contrast, with respect to risk and value relevance, the capital market appears to endow securitizations with incomplete transfers of control and risk and treats them

as secured borrowings (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. 2012). A fundamental aspect of the extent and nature of risk transfers in banks' asset securitizations is the explicit or implicit recourse that leaves the bank with residual risks in addition to their recognized 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 securitizations.

Incomplete disclosure requirements during 2003–2009 generally constrain full 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).[7] The financial reporting choices cannot fully describe complex asset 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. Although the implementation of FAS 166 and FAS 167 in November 2009 reduced flexibility in accounting for asset securitizations, information uncertainty still exists within asset securitization activities due to the complexity of securitization transactions, procedures and documentation.

III. HYPOTHESES DEVELOPMENT

Prior research suggests that, on average, financial markets treat asset securitizations as

[7] Before the sub-prime crisis, it was argued that securitization could reduce information uncertainty because compared to non-securitized assets, securitization requires disclosure of more information (Foley et al. 1999; Schwarcz 2004) and the increased transparency regarding underlying loans mitigated information asymmetry; and rating agencies periodically publish ratings on securities and provide third party monitoring of securitized assets.

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. 2012). Arguing that auditors are sensitive to market participants' attitudes towards asset securitizations, we hypothesize relations between auditor risk and asset securitization risk factors, 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. Auditing standards require auditors to reduce audit risk to an acceptable level when planning and conducting an audit. An auditor who identifies higher risk of material misstatement is expected 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 audit risk in both non-bank audits (O'Keefe et al. 1994; Pratt and Stice 1994; Lyon and Maher 2005; Hay et al. 2006) and bank audits (Fields et al. 2004).

We expect asset securitizations to increase auditors' assessed risks of material misstatement for at least three reasons. First, asset securitizations are complex transactions between multiple parties (such as the client bank, one or more SPEs, a guarantor, a rating agency and investors), which involve complex legal documents and increase inherent risk. Second, accounting for a securitization as a sale, and externalization of the SPE and its subsequent transactions, may veil the economic substance of the transaction and the financial risk status of the bank. Third, securitization transactions may arise from motivations associated with earnings management (Healy and Wahlen 1999; Degeorge et al. 1999; Matsumoto 2002) and capital management (Moyer 1990; Karaoglu 2005). Bank management may exploit the SPE

veil to use securitizations for manipulation purposes (Karaoglu 2005; Ambrose et al. 2005; Rosenblatt et al. 2005; Dechow and Shakespeare 2009). Overall, the complexity of securitization transactions facilitated considerable accounting discretion during our study period, when banks had significant incentives to maintain financial performance and capital levels.

These factors increase the risks of material misstatements in the financial statements of banks engaged in asset securitizations. Therefore, we argue that asset securitization risks will increase auditors' assessments of the risks of material misstatements and that auditors will adjust their audit effort accordingly, thus increasing audit fees.[8] On this basis, we expect to find a positive association between asset securitization risks and audit fees.

H1: There is a positive association between asset securitization risks and audit fees.

We provide more detailed reasoning for this expected relation in the following section.

Asset securitization risks and audit fees

Auditors are expected to encounter a bank's asset securitization risks via accounting disclosures and misstatement risks associated with securitization income, the level of securitized assets, and retained interests. As discussed below, we expect positive associations between each of these sources of risks and audit fees.

Securitization income is subject to ambiguous information on securitization gains and the motives and practice of managers to use securitizations for earnings and capital management

[8] The expectation that increased inherent risk assessments increases auditor effort is consistent with the extant auditing literature. There is substantial evidence that complexity measures based on organizational structure, asset structure and industry diversity are positively associated with audit effort or fees (Hay et al. 2006).

purposes (Degeorge et al. 1999; Matsumoto 2002; Ryan 2007). The literature identifies four ways in which bank managers use securitizations for opportunistic purposes: (1) timing (Rosenblatt et al. 2005; Dechow and Shakespeare 2009); (2) classification of sales vs. borrowings (Karaoglu 2005); (3) selection of loans to be securitized (Pavel and Phillis 1987; Ambrose et al. 2005; Minton et al. 2004); and (4) valuation of retained interests (see FAS 157; Dechow et al. 2010). 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 that prior research shows that managers use asset securitizations to manage earnings, we expect a positive relation between securitization income and audit fees.

Asset securitization risks are affected by the level of a bank's securitized assets because it affects its exposure to implicit recourse. Further adding to potential audit effort, with increased levels of securitization activities, the auditor must sample from more securitization transactions and faces greater risks of undisclosed credit enhancements or misclassified transactions. Originators sometimes provide implicit recourse to the investors (Higgins and Mason 2004; Calomiris and Mason 2004); for example, 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 for the securitized assets. Originators also voluntarily provided credit support by repurchasing assets or extending credit to the SPEs during the financial crisis of 2007-2009.[9] This potential

[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

exposure, combined with the extent to which the amount of securitized assets may indicate undisclosed credit enhancements or mis-described transactions, increases the risk of misstatement. Therefore, we expect a positive relation between the level of asset securitization activities and audit fees.

Irrespective of the classification of an asset securitization as a sale or borrowing, we expect auditors to consider banks' retained interests in securitized assets when evaluating the inherent risks of asset securitizations. The retained interests commonly have a subordinate claim to the cash flows from the securitized assets, and are designed to be sufficient to cover potential losses. Therefore, we expect to find a positive association between the level of retained interests and audit fees.[10]

The relative importance of retained interests and the information quality of securitization income may be influenced by the quality of the underlying assets. Auditors should consider the credit risk of the underlying financial assets as a business risk factor. When credit losses exceed the bank's retained interests, securitizers may then provide implicit recourse against further losses of the investors. Vermilyea et al. (2008) suggest a trade-off of the bank's reputation and the cost of supporting problematic securitization transactions, but the credit risks embedded in asset securitizations are empirically linked with the total securitized

losses to Citicorp in this striking example of honoring an implicit guarantee (Amiram et al. 2010).

[10] 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). Because the lack of a market consensus price means the fair value estimate of the components relies on subjective assumptions of default rates, prepayment rates and discount rates (FAS 157), the reliability of estimated fair value is sensitive to the economic environment and is 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). This implies that the guarantee provided by the originator extends beyond retained interests to cover the total credit risk of the assets underlying the securities. If this is the case, retained interests may be of no particular importance to auditors in judging the level of risk for the originator arising from securitized assets.

amount, the proportion of the retained interests, and the earnings numbers in securitizations (Healy and Wahlen 1999). If auditors are aware of the credit risks embedded in securitizations, the credit quality of the securitized assets, as reflected in the non-performing ratio and charge-off ratio of securitized assets, will influence audit effort and, therefore, will have a positive association with audit fees.

The effect of the global financial crisis on auditor behavior

The downturn in the US property market in 2006 further escalated the rate of mortgage defaults. 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 corporate earnings, the emergent fragility of sub-prime debt instruments and increasing liquidity issues caused a deposit exodus from affected banks that led to prominent bank failures. These factors, combined with the accompanying demise of other financial entities crucial to the shadow banking system, had substantial flow-on effects that rolled into the global financial crisis. Bankruptcy statistics reflect this pattern. In the calendar years 2003–2006, US business bankruptcy filings were relatively stable at around 35,000 filings in each year. The number of filings decreased to 25,925 in 2007 and then increased substantially to 58,721 in 2009 and 56,282 in 2010.[11]

Prior research has investigated bank audit pricing in a financial crisis setting. Based on a sample of surviving savings and loan institutions for the period 1983-1988, Hill et al. (1994) find that a bank's probability of business failure, bank's involvement in litigation, and ownership structure are positively associated with audit fees, suggesting that auditors

[11] Bankruptcy statistics were 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.

considered business risks in audit pricing during the savings and loan crisis. However, compared with the regional and industry-specific impact of the savings and loan crisis, the impact of the recent crisis on the global and US economies is pervasive. It is likely that banks and their auditors are sensitive to lead indicators of bankruptcy, which we suggest would have alerted auditors to the increased systemic risk with the onset of the GFC. Therefore, we investigate whether auditors' responses to asset securitization factors changed post GFC-onset.

Constraints on the availability of capital and credit, going concern and liquidity issues, and the discretion and complexity in SPEs contribute to the auditor's assessment of audit risk for a financial sector client. This will be exacerbated by complex financing arrangements and significant estimation and valuation uncertainty in a deteriorating market during the GFC period. Irrespective of their behavior in relation to asset securitizations pre-GFC, we expect that auditors paid more attention to asset securitization risks post GFC-onset, resulting in a stronger relation between audit fees and asset securitization risks.

H2: The positive association between asset securitization risks and audit fees is stronger after the onset of the GFC compared to before the GFC.

FAS 166 and FAS 167 virtually eliminate sale accounting and non-consolidation of securitized assets. However the timing and the effect of FAS 166 and FAS 167 are arguable. Although FAS 166 and FAS 167 were issued in June 2009 and took effect in November 2009, these regulatory changes were proposed in 2008 when, triggered by the GFC, the market and regulators observed problems in securitization accounting. Coinciding with these regulatory change proposals in 2008, banks may have voluntarily adjusted their accounting treatment to securitization transactions before the implementation of the new standards (Gurun et al.

2009), leading to reduced off-balance sheet financial risk from asset securitizations before FAS 166 and FAS167 became operational, or may have entered into restructuring arrangements to avoid consolidating off-balance sheet securitization vehicles under the proposed accounting standards (Bens and Monahan 2008), leading to a more complicated business scenario in audits. Due to the ambiguity on the timing and the effect of the FAS 166 and FAS 167 in audit risk assessment, we do not propose hypotheses about FAS 166/167 changes and leave the period after the implementation of FAS 166 and FAS 167 as a benchmark period in the comparison.

Commented [GM1]: Why not just test it as being for years ending November 2009 onwards and then mention this as a limitation?

Commented [Y2]: I think Ok. Just wonder the design: I will have GFC*Secu interactions as before. Do I still need the FAS*Secu interactions tests in Panel A Table 6?

Commented [Y3]: Table 6 is the current design.

In Panel A: GFC cut-off is 2007, pre-GFC is 2003-2006 and during-GFC is 2007-2011; FAS (better altered to AFTER2010 or FROM2010) cut-off is 2010, post-2010 period is 2010-2011.

In Panel B the subsample comparison: Pre-GFC is 2003-2006; during-GFC is 2007-2009; post-FAS is 2010-2011.

Please evaluate if it is appropriate?

IV. RESEARCH DESIGN

Data Sources

Consistent with prior research (e.g., Karaoglu 2005; Chen et al. 2008; Barth et al. 2012), we obtain bank financial data and asset securitization details from the FRB Y9-C Regulatory Filing database. Y9-C reports are filed each quarter by bank holding companies (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 in the reporting threshold to $500 million total assets after 2006 do not affect our results because the majority of banks engaging in asset securitizations exceed the $500 million asset threshold throughout our study period. 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 the Audit-Analytics database. One-year standard deviations of daily stock returns are calculated from daily stock prices and dividend information collected from the CRSP database.

Sample

Our sample is restricted to listed BHCs for three reasons. First, for firms performing securitization activities, BHCs represent a relatively large and economically important sample (Barth et al. 2012). Niu and Richardson (2006) indicate the intensity of securitization related transactions in the traditional financial sector is more pronounced than in other sectors. Dechow et al. (2010) report that BHCs are the primary securitizers of financial assets. Second, as per Chen et al. (2008), restricting our sample to BHCs increases our ability to focus on the variables of interest and improves observability of the effect of the securitization risks. Third, audit fee information is available only for publicly listed companies.

Our sample covers the period from 2003 to 2011. We start with 2003 because although securitization data on Y-9C Bank Regulatory reports are available from the second quarter of 2001, most data on retained interests are available only from 2003. The accounting standards on asset securitizations are generally consistent for the years 2003 to 2009, during which FAS 140 (replaced by FAS 156 in 2006)[12] and FIN 46R allowed sale accounting and non-consolidation of asset securitization transactions. Accounting standards on asset securitizations changed significantly in November 2009 with the implementation of FAS 166 and FAS 167. We use the period after the implementation of FAS 166 and FAS 167 (2010 – 2011) as a benchmark period because most of the audit risks on asset securitizations were removed by FAS 166 and FAS 167. The FRB Y-9C regulatory filing database contains 50,021 BHC-year observations for 2003-2011, of which 12,763 have valid total asset data. Using the CRSP-BHC link to identify the listed BHCs yields 3,249 listed BHC-year observations.

[12] The change from FAS 140 to FAS 156 has very limited impact on asset securitization accounting. See Footnote 7.

Commented [GM4]: Why not 2009-2011? Did financial statements issued after Nov 2009 follow the new standards? If so, wouldn't Nov 2009 be the starting point and most, if not all, of our sample have Dec 31 year-ends.

I don's see how the new standards removed most of the audit risks. They reduced choice in how to account for securitizations. How does this reduce audit risk? Did it remove most of the off-balance sheet risks and make them on-balance sheet?

Commented [Y5]: "This Statement must be applied as of the beginning of each reporting entity's first annual reporting period that begins after November 15, 2009." (FAS 166, p. i)
It seems that FAS 166 was effective for the fiscal year beginning after November 2009, or in another words, for annual reports of the years after 2010.

Commented [Y6]:
According to FAS 166, a securitization of financial assets is accounted for as a sale when the transferring company surrenders control over the assets transferred and receives cash and other proceeds in return. Control is considered to be surrendered only if all three of the following conditions are met: (1) the assets have been legally isolated from the issuer/transferor; (2) the transferee has the ability to pledge or exchange the assets; and (3) the issuer does not maintain effective control over the assets. If the securitization does not qualify as a sale, it is accounted for a secured borrowing, which the assets remaining on the issuer's balance sheet and no gain or loss being recognized.

Additionally, FAS 166 (along with FAS 167) eliminates the concept of a Qualifying Special
Purpose Entity (QSPE). For securitizations that qualify for sale accounting, the use of a QSPE ensured the securitized assets and associated debt stay off the issuer's books. Former QSPEs are now subject to consolidation like any other SPE.

By tightening the sale accounting requirement and eliminating non-consolidation opportunities, FAS166/167 remove (1) most of the off-balance sheet risks related to asset securitizations, and (2) management's motives and opportunities to use asset securitizations for manipulation purposes. Both reduce inherent risk (audit risk).

The audit risk still existed in asset securitizations is COMPLEXITY. Securitization transactions and documents are still complex and hard to audit.

Can this justify?

Further matching the audit fee data from Audit-Analytics database yields our final sample of 3,051 firm-year observations for 533 US publicly listed BHCs for 2003-2011. The sample is comprised of 2,027 firm-years for 379 BHCs that are securitizers and 1,024 firm-years for 224 BHCs that are non-securitizers.[13]

Audit Fee Model

We use Model (1) to test whether securitization risks are associated with audit fees. Model (1) is an adaptation of the audit fee model for financial institutions in Fields et al. (2004).

$$\begin{aligned} LNAF = {} & \alpha + \beta_1 SECINC + \beta_2 SECRISK + \beta_3 GFC + \beta_4 GFC*SECINC + \\ & \beta_5 GFC*SECRISK + \beta_6 LNTA + \beta_7 BIGN + \beta_8 STDRET + \beta_9 LOSS + \\ & \beta_{10} CAPRATIO + \beta_{11} TRANSACCT + \beta_{12} SECURITIES + \beta_{13} COMMLOAN + \\ & \beta_{14} MTGLOAN + \beta_{15} INTANG + \beta_{16} CHGOFF + \beta_{17} NONPERFORM + \\ & \beta_{18} INEFFICIENCY + \beta_{19} SENSITIVE + \beta_{20} SAVING + \beta_{21} INTDERIV + \\ & \beta_{22} EXEMPT + \beta_{23} SECURITIZER + \mu \end{aligned} \quad (1)$$

Our dependent variable, LNAF, is the natural log of the audit fee. To test H1, we include our two primary test variables, SECINC and SECRISK. SECINC is the relative gains on securitization, calculated as the net securitization income divided by net income. SECRISK is asset securitization risk, calculated as a factor score generated from a principal components analysis using total outstanding securitized assets, retained interests, non-performing securitized loans and charge-offs for securitized loans, with each scaled by total assets.[14] To

Commented [GM7]: You only added one new variable. Didn't the reviewers suggest adding more than one?

Commented [Y8]: EXEMPT is the most emphasized additional variable by reviewer 2 (Reviewer 2, 2d and 4d). He/she also emphasized Level 3 assets (Reviewer 2, 4d). EXEMPT is added in the main model. L3 is only controlled in the sensitivity tests, as L3 data only exists after 2007/2008.

Reviewer 2 also ask other measures of complexity, e.g., number of segments and foreign operations, as they are in the traditional audit fee model (Reviewer 2, 4a). I didn't address them.

Hay et al. (2006) meta-analysis identify 7 most commonly used complexity variables, including the number of subsidiaries (82 studies), the number of foreign subsidiaries (39), the proportion of foreign assets (11), the number of Standard Industrial Classification (SIC) codes that make up the client (14), the number of business segments (7), the number of audit locations (7), and a subjective rating
of complexity provided by the audit team (9).

If choosing number of SIC code, all the BHCs in the sample fall into the same SIC code. It is the same if choosing the number of segments.

Foreign operations (measured as the proportion of foreign assets or the number of foreign subsidiaries) may not be very suitable, as the banking industry tend to be multinational.—or maybe not?

I also think Complexity grows in line with Size.

[13] Approximately 2/3 (2,027/3,051) of the BHC-year observations are classified as securitizers in this study, which is defined as BHC-year observations that have at least one in the five test securitization variables (ABS, RETINT, SECINC, NPL_SEC, and CHGOFF_SEC) different from zero. For the period 2001-2009, Jiangli and Pritsker (2008) report that only 185 of 2,231 BHCs as securitizers, in which a BHC is defined as a securitizer if the reported ABS value changes in the concurrent quarter. As securitization-related audit risk does not just lie in the ABS occurrence and changes, considering other aspects of securitization factors would be necessary in this study. Our method is also consistent with Cheng et al. (2011).

[14] More detail on the principal components analysis is presented later in the paper.

test H2, we add GFC and interaction terms between GFC and each of SECINC and SECRISK. GFC is an indicator variable equal to 1 for the during-GFC years (2007–2011) and 0 for the Pre-GFC years (2003–2006). For the benchmark tests, we add AFTER2010 and its interactions with SECINC and SECRISK. AFTER2010 is the indicator for years after 2010 (2010-2011), addressing the period in which FAS166 and FAS 167 have removed most of the off-balance sheet risk in relation to asset securitizations while complexity might still be a concern for audtiors.

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There is debate about the commencement date of the GFC. Generally the consensus is that the GFC began in 2007. In an examination of the impact of corporate governance on the performance of financial firms, Erkens et al. (2012) define the GFC as the period from January 2007 to September 2008. Watts and Zuo (2012) define the period from August 2007 to August 2009 as the GFC period in examining the effect of accounting conservatism on firm value during the GFC. In this study, the year 2007 is used as the commencement year for the GFC in the main tests based on the argument that the period after 2007 is generally accepted as the peak of the GFC.[15]

Our control variables are those used in Fields et al. (2004) plus two others. LNTA is the natural log of total assets. BIGN equals 1 if the incumbent auditor is a Big 4 auditor, 0 otherwise. STDRET is the corresponding one-year standard deviation of daily stock returns. LOSS equals 1 if the BHC reports a loss, 0 otherwise. CAPRATIO is the risk-adjusted capital ratio, calculated as total bank regulatory capital divided by risk-weighted assets.

[15] We also consider alternative definitions of the GFC period. For example, Doogar et al. (2012) consider the period 2005-2007 as the years leading to the GFC, implying that 2006 has seen some impact of the GFC and 2007 is heavily influenced by GFC shocks. In our sensitivity tests, we exclude the year 2006 and 2007 respectively to eliminate the potential bias led by the GFC cut-off; we also switch the cut-off year to 2006. Alternative definitions of the GFC period generate consistent results.

TRANSACCT is transaction accounts divided by total deposit (transaction accounts include non-interest-earning demand deposit accounts, interest-bearing checking accounts in NOW accounts, automatic transfers from savings accounts, and Money Market deposit accounts). SECURITIES equals investment security assets divided by total assets (investment security assets include held-to-maturity and available-for-sale securities). COMMLOAN is the proportion of commercial loans to gross loans (commercial loans consist of commercial and industrial loans, loans to depository institutions, acceptances issued by other banks, and agricultural loans). MTGLOAN equals mortgage loans/gross loans. INTANG equals intangible assets/total assets. CHGOFF equals net charge-offs/allowance for loan and lease losses. NONPERFORM equals non-performing loans/gross loans (non-performing loans are defined as loans $\geq$ 90 days past due, non-accrual loans, leases and other assets). INEFFICIENCY is the management efficiency ratio, calculated as the ratio of total operating expenses (including interest expense) to total revenue (including interest revenues). SENSITIVE is the on-balance-sheet interest rate risk measure, calculated as (interest rate-sensitive assets - interest rate-sensitive liabilities)/total assets. SAVING equals 1 if the BHC is a savings institution, 0 otherwise. Our additional control variables are INTDERIV, EXEMPT and SECURITIZER.

INTDERIV is the notional amount of a bank's interest rate derivatives divided by total assets, which we argue captures off-balance-sheet interest rate risks.[16] We add this variable because

[16] 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.

interest-rate-sensitivity should be measured both on-balance-sheet (SENSITIVE) and off-balance-sheet (INTDERIV). 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, thus exaggerating interest rate risk and increasing audit fees. In addition, the complexity of derivatives leads to increased audit fees.

We include EXEMPT to control for the potential effect of banks exempted from reporting on internal controls under FDICIA and SOX Section 404. FDICIA Part 363 requires insured institutions with $500 million or more in total assets to present management reports on compliance and internal control system and those reports must be assured by independent auditors. The threshold has increased to $1 billion in total assets from 2005 (FDIC 1993 and FDIC 2005). In addition, Section 404 of SOX requires public companies to file a report on the auditor's attestation of the internal control effectiveness, however, non-accelerators with market capitalization less than $75 million are exempted from this requirement. Prior research suggests that FDICIA has strengthened the banks' business viability with increased ROA and ROE (Carnell 1997) and reduced failure risk (Benston and Kaufman 1998). Under SOX Section 404, earnings' properties improved subsequent to the disclosure of ineffective internal control remediation (Ashbaugh-Skaife et al. 2008). These findings suggest that there may be differences in risk characteristics and financial performance between exempted and non-exempted banks. We include SECURITIZER to distinguish securitizers from non-securitizers.[17]

Commented [GM10]: Are the internal control reports audited? Reviewed?

Commented [Y11]: FDICIA 363.3 requires auditors audit the annual financial statements, and make **attestation** and report on the management's compliance and internal control reports.

"The attestation and report shall be made in accordance with generally accepted standards for attestation engagements or the PCAOB's auditing standards."

It seems auditing or reviewing are both acceptable.

See: http://www.fdic.gov/regulations/laws/rules/2000-8500.html#fdic2000part3633

Commented [Y13]: Public float?
The same as market cap (capitalization).

Market capitalization (or market cap) is the total value of the issued shares of a publicly traded company; it is equal to the share price times the number of shares outstanding.

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[17] Untabulated sensitivity tests show that our modifications to the Fields et al. model do not affect our main test results.

Table 1 tabulates definitions of all variables used in our study.

<Insert Table 1 here>

Asset Securitization Risk Measures

Asset securitization risks are initially measured using five variables obtained from the FRB Y-9C database: SECINC equals securitization income divided by net income; ABS equals total outstanding securitized assets, deflated by total assets as per Barth et al. (2012); RETINT equals total retained interests (including retained interest only strips, retained credit enhancements, and unused commitments to provide liquidity) deflated by total assets as per Barth et al. (2012); NPL_SEC equals total nonperforming securitized loans scaled by total assets; and CHGOFF_SEC equals total charge-offs for securitized loans scaled by total assets. SECINC represents the gains on securitizations; 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 and Shakespeare 2009). ABS measures the overall level of asset securitization activities, and also indicates the maximum level of implicit recourse the BHC might provide on its securitized assets. RETINT measures the level of explicit recourse, and may also suggest the credit quality of the underlying assets if originating banks choose to retain the lower quality tranches. NPL_SEC and CHGOFF_SEC proxy for the securitized asset quality and also relate to the relative importance of implicit or explicit recourse, and the potential motivations of discretionary accounting. Descriptive statistics of the asset securitization risk variables are presented in Panel A of Table 2.

<Insert Table 2 here>

Each securitization risk variable captures only specific aspects of the underlying securitization risks and includes measurement error (Cheng et al. 2011). To reduce measurement error, we follow Cheng et al. (2011) by conducting a principal components analysis to generate a composite securitization risk measure, using ABS, RETINT, NPL_SEC and CHGOFF_SEC (as shown in Panel B of Table 2, these variables are highly correlated). SECINC is not included in the principal components analysis because it is not significantly correlated with the other asset securitization risk variables. The results of the principal components analysis indicate that ABS, RETINT, NPL_SEC and CHGOFF_SEC load highly on one factor, which represents the balance sheet aspect of asset securitization risk, which we label SECRISK. This factor has an eigenvalue of 2.186 and explains 55% percent of the variance; the factor weights are presented in Panel C of Table 2. SECRISK and SECINC are used as the asset securitization risk measures in our main tests. We also test each of the individual asset securitization risk variables in our additional analyses.

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It is noted that the mean values of the underlying securitization variables in Table 2, most notably ABS and SECINC, and the correlations are significantly lower than those reported in Cheng et al. (2011). The sample examined in this study covers both securitizers and non-securitizers; while Cheng et al. (2011) only investigate the securitizing bank sample. The difference in sample construction contributes to the observed difference in mean values and correlations. Furthermore, different sample periods and different data sources in subsequent data steps between our study and Cheng et al. (2011) also result in the differences in the securitization variable distribution.

Descriptive Statistics

Table 3 Panel A and Panel B report the descriptive statistics for the pooled data from 2003 to

Deleted: Descriptive statistics of the variables used in our model are presented in Table 3, with pooled means and standard deviations, and annual means.

2011 and the pre-GFC, during-GFC and post-FAS166/167 comparison.

<Insert Table 3 here>

The pooled average audit fees are $1.48 million, with a strong upward trend from pre-GFC period, to the during-GFC period and post-FAS166/167 period. The pre-GFC, during-GFC and post-FAS166/167 comparison indicates that securitized assets (ABS_AMT) increase from $3.60 billion before the GFC to $7.32 billion during the GFC and then decline to $4.62 billion after the implementation of FAS 166 and FAS 167. Retained interest amount (RETINT_AMT) shows a similar pattern. Problematic securitized assets as reflected in NPL_SEC_AMT and CHGOFF_SEC_AMT increase significantly with the onset of the GFC (after 2007) and stay stable when the FAS 166 and FAS 167 mandate. Although the subperiod comparison indicates a slight increase in SECINC_AMT after the onset of the GFC, untabulated yearly distribution statistics show that the securitization income drops sharply in 2008, suggesting the impact of the GFC on securitization income lags to its impact on underlying assets' credit quality.

The sample is highly skewed with average total asset more than 20 times larger than the median for the pooled data and the yearly data (untabulated). This distribution is common in bank research (e.g., Fields et al. 2004; Karaoglu 2005; Chen et al. 2008 and Ettredge et al. 2011), which Fields et al. (2004) attribute to several very large BHCs in the population. The proportion of BHCs audited by Big N auditors is 47.3% for the pooled period, declined from 55.2% before the GFC, to 43.5% after the onset of the GFC and further declined to 40.4% after 2010. Simunic and Stein (1987) and Fields et al. (2004) suggest that the lower proportion of Big N auditors for bank audits, compared to other industries, is due to the increased litigation risk in the banking industry resulting in a shift from larger to smaller audit

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firms.[18] Ettredge et al. (2011) claim that the decrease in Big N audits of BHCs reflects client migration to small auditors after SOX 404 became effective. Our unreported additional analysis indicates that the average audit fees and total asset values are all much lower for Non-Big N audits than for Big N audits.

There is a sharp increase in the proportion of BHCs experiencing losses during the GFC, with loss rates increased from a pre-GFC 1.6% to a during-GFC 27.5%, and then slightly declined to 22.5% after 2010. While commercial loan ratio is generally stable, the ratio mortgage loans decreases during the GFC and recovers slightly after 2010. Asset quality deteriorates in these years, as reflected in the non-performing loan ratio (NONPERFORM) and charge-off ratio (CHGOFF), with worsening management efficiency (INEFFICIENCY) post the onset of the GFC.

BHCs with securitization activities are statistically different from BHCs without securitization activities on several different dimensions as indicated by the Satterthwaite T-tests reported in Table 3 Panel C. Compared to non-securitizers, securitizers tend to have higher audit fees (LNAF), be larger (LNTA) and are more likely to be audited by a Big N auditor (BIGN). Securitizers have higher proportions of transaction accounts (TRANSACCT), mortgage loans (MTGLOAN), intangible assets (INTANG) and off-balance-sheet interest rate derivatives (INTDERIV), and tend to have higher charge-off ratios (CHGOFF) and lower inefficiency ratios (INEFFICIENCY).

Correlations

Table 4 shows the Pearson correlations between the regression variables in the pooled

Deleted: reaching 31.5% in 2008 and 47.1% in 2009.

Deleted: asset composition (TRANSACCT, COMMLOAN, MTGLOAN)

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Deleted: Securitized assets (ABS_AMT) increase from $2.34 billion in 2003 to $9.55 billion in 2008, and then decline to $6.95 billion in 2009. In contrast, retained interests (RETINT_AMT) increase from $126.61 million in 2008 to $526.06 million in 2009, probably due to the radically changing economic environment after 2007 and regulatory changes in late 2008 and early 2009. There is a corresponding decrease in securitization income in 2008 and the non-performing loan ratio and charge-off ratio on securitized assets (NPL_SEC and CHGOFF_SEC) increase after 2007.¶
The sample is highly skewed with average total asset more than 10 times larger than the median for the pooled data and the yearly data (untabulated). This distribution is common in bank research (e.g., Fields et al. 2004; Karaoglu 2005; Chen et al. 2008 and Ettredge et al. 2011), which Fields et al. (2004) attribute to several very large BHCs in the population.¶

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Deleted: , and have higher audit fees (LNAF).

[18] Fields et al. (2004) report that more than 70% of BHCs were audited by Big N auditors in 2000.

sample. The natural log of audit fees (LNAF) is highly correlated with most of the control variables except for CAPRATIO and SECURITIES. It is also noted that LNAF is uncorrelated with the income statement aspect asset securitization risk, SECINC.

<Insert Table 4 here>

The interest derivative measure, INTDERIV, is positively correlated with LNAF. Derivative transactions are higher for larger BHCs (LNTA), BHCs with Big N auditors (BIGN), BHCs with a higher proportion of commercial loans (COMMLOAN), a higher proportion of intangible assets (INTANG), and BHCs with higher levels of problematic loans (CHGOFF and NONPERFORM). Derivative positions are lower for BHCs with higher market volatility (STDRET) and higher proportion of investment securities. BHCs with higher ratio of interest sensitive positions (SENSITIVE) also have higher level of interest rate derivatives.

Deleted: and mortgage loans (MTGLOAN)

FDICIA and SOX Section 404 exempted banks are generally charge lower audit fees (LNAF). Exempted banks are lower in total assets (LNTA), less likely audited by Big N auditors (BIGN), with lower levels of transaction accounts (TRANSACCT), investment securities (SECURITIES), commercial loans (COMMLOAN), intangible assets (INTANG), on-balance sheet interest rate sensitive positions (SENSITIVE) and off-balance sheet interest derivatives (INTDERIV). Exempted banks are higher in market volatility (STDRET), more likely to incur a financial loss (LOSS) and being inefficient (INEFFICIENCY) but less likely to write off problematic assets (CHGOFF).

The asset securitization measures (excluding SECINC) exhibit similar patterns in their correlations with a number of control variables. We explain the positive correlation between ABS, RETINT and Big N auditors as that the complexity of asset securitization transactions and related high litigation risks encourage BHCs to seek a higher audit quality from Big N

audit firms. In addition, BHCs with higher a charge off ratio (CHGOFF) and the non-performing loan ratio (NONPERFORM) are also more active in asset securitization activities, implying that banks with problematic asset quality are more likely involved in asset securitization transactions. ABS and RETINT are both positively correlated with INTDERIV; RETINT is negatively correlated with EXEMPT. Higher interest rate derivatives concurrent with greater credit risk in the underlying securitized assets (NPL_SEC and CHGOFF_SEC); while exempted banks are less likely to participate in asset securitization activities and have lower credit quality problem on securitized assets.

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V. RESULTS

We report the regression results for our pooled data, controlling for year fixed effects and with standard errors clustered one way on BHCs. Although Gow et al. (2010) indicate that two-way clustering is superior compared to one-way clustering method; they admit that "one concern with cluster-robust methods is their finite sample properties (e.g., Defond and Hung 2007)" leading to over-rejecting a true null when the number of clusters is small (Cameron et al. 2008; Thompson 2011) and suggest the proper number of clusters should be greater than 10 (Gow et al. 2010, p. 490). Noting our pooled sample only covers a 9 year span and is further divided into 3 sub-periods, the number of year clusters would be too small to generate an unbiased result.[19]

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Validating the Basic Audit Fee Models

Commented [Y14]: Reviewer 1 suggest to summarize this section as a footnote (Comment No. 13).

To test model reliability, we first estimate the Fields et al. (2004) model, which does not

[19] We also use two-way clustering in the sensitivity tests and generate generally consistent but less significant results.

consider securitizations and was estimated using cross-sectional data for the year 2000. As reported in Column (1) of Table 5, LNTA, BIGN, CAPRATIO, SECURITIES, [20] INTANG, NONPERFORM, and INEFFICIENCY are significant at the 0.05 level and have the same signs as reported in Fields et al. (2004), but we obtain the opposite sign for MTGLOAN.

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<Insert Table 5 here>

We next extend the Fields et al. (2004) model by adding INTDERIV; this marginally improves the model fit, as reported in Column (2). INTDERIV is significant and positive for the pooled sample ($p < 0.01$) and also for the untabulated yearly subsamples. Adding EXEMPT into the model further increase the explanation power of the basic model. Exempted banks are lower in audit fees at a marginal significant level ($p = 0.067$). Untabulated yearly regression results for the extended model are generally consistent for the other independent variables. Similar to the reported pooled result, for each year, LNTA and BIGN are positively and MTGLOAN is negatively associated with audit fees. SAVING, COMMLOAN and SENSITIVE are not significant in the Fields et al. model or the extended model for the pooled and yearly results.[22]

Audit Fees and Asset Securitization Risks

To test H1, we add the securitization risk factors SECRISK and SECINC to the model. We then test H2 by adding the time-period indicator GFC and interaction terms SECRISK*GFC and SECINC*GFC. We also split the sample into pre-GFC and during-GFC subsamples to compare any changes effected by the GFC. We use the period after the implementation of

[20] The sign of our coefficient for SECURITIES is consistent with Fields et al. (2004) because we define it as investment securities/total assets and Fields et al. define it as (1 - investment securities)/total assets.

[22] Multicollinearity is not a problem in the basic model as indicated by the highest Variance Inflation Factor (VIF) being 2.98.

FAS 166 and FAS 167 (2010-2011) as a benchmark period to investigate if auditors' attention to asset securitization risks eliminates when accounting standards greatly remove the audit risks associated with asset securitization risks. The results are reported in Table 6.[23]

<Insert Table 6 here>

H1 is supported. SECRISK and SECINC are significant and positive ($p < 0.01$ and $p < 0.05$ respectively) with other on-balance sheet financial risks controlled, indicating that audit fees increase with BHCs' asset securitization risks in addition to audit risks reflected on the balance sheet. Although extant literature shows that inherent risk is positively priced in audit fees and this relationship holds for the banking industry (Fields et al. 2004), the supporting result on H1 suggests that bank auditors are also attentive to off-balance sheet securitization risks during the period 2003-2011.

The results do not support H2. The CHOW Test suggests a structural change in the model after the onset of the GFC and the coefficient for GFC is positive and highly significant. Recent research on auditors' fee pressure during the GFC by Ettredge et al. (2013) argues that during the crisis client management may demand reduced fees and shows that approximately 30% audit engagements in 2008 faced fee-pressure.[24] Noting the GFC premium is additional

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[23] The VIFs do not indicate multicollinearity is a problem in the pooled model without the GFC and the related interaction terms, where the highest VIF is 3.12. However, when GFC and its interaction terms are added to the pooled model, we obtain high VIFs on SECINC and SECINC*GFC. We use centered regressions and partitioned sample tests to address this issue. This approach is used in all the other reported regressions unless otherwise indicated.

[24] Ettredge et al. (2013) measure the audit fee-pressure by three ways: (1) a client's actual audit fee in 2008 compared with its audit fee in 2006; (2) a client's actual audit fee in 2008 compared with the benchmark audit fee calculated in accordance with Picconi and Reynold (2012) model; and (3) a fee pressure score based on (1) and (2). Median values are used to calculate fee-pressure instead of the mean values. They find about 30% of the observations experienced positive fee-pressure in 2008. However, they do not actually provide evidence of an overwhelming fee-cutting as the mean values of the fee-pressure measures are negative, and other 70% observations did not experience fee-pressure according to their fee-pressure measurements.

to the fee premium adjustments on other inherent risk due to the GFC controlled in the model, the result conforms to Hill et al. (1994) that shows an increase in audit fees in a crisis environment (Savings and loan crisis) in relation to the increased overwhelming business failure and litigation risk, and is consistent with the public intuition that auditors charge higher fees across the sector after the onset of the GFC, coexisted with the fee-pressure from a large proportion of clients.

In H2 tests, the coefficient for SECRISK*GFC is not significant and the coefficient for SECINC*GFC is significant and negative, indicating that income from securitizations, while still positively related to audit fees, became significantly less important post-GFC onset. All the results hold for the split sample regressions as shown in Panel B, when we compare the pre-GFC and during-GFC sub-periods. The relation for SECINC*GFC seems to be driven by the increased number of BHCs reporting a loss in 2008 and 2009.[25] The proportion of BHCs reporting losses in the during-GFC subperiod is 28 percent, compared to 2 percent in the pre-GFC subperiod.[26] Reporting a loss, rather than a gain, decreases the likelihood that management used the securitization transactions to manage earnings upward, decreasing potential audit risk. Therefore, we re-estimated our regressions by splitting the sample into BHCs reporting a positive net income (N = 2,647) and BHCs reporting a net loss (N = 404). Untabulated results indicate that SECINC is positive and significant for both the pre-GFC (β = 0.08; p = 0.015) and during-GFC subsamples (β = 0.18; p = 0.002). The significantly larger coefficient for SECINC for the during-GFC subperiod (p = 0.087) supports H2, implying that

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[25] SECINC decreases from +0.05 in 2007 to -0.24 in 2008, and the percentage of BHCs reporting a loss (LOSS) increases from 6 percent in 2007 to 31.5 percent in 2008 and 47.1 percent in 2009.

[26] The proportion of BHCs reporting negative securitization income remained fairly constant, at 11% pre-GFC and 10% during-GFC. Excluding BHCs reporting a loss for securitization income does not affect the main test results.

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auditors might put more effort in validating the securitization income but only when BHCs report a positive net income, probably due to the earnings management suspicion. [27] Note that the contrast group of BHCs with a net loss has less than sufficient observations to generate a reliable pre-GFC vs. post-GFC comparison result.

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Column 3 reports the effect of the FAS 166 and FAS 167 on audit pricing to asset securitization risks. It is noted that there is a further significant increase in overall audit fees after 2010, compared with the pre-2010 period (FAS: coef. = 0.46, p = 0.000) but no significant change in the audit pricing to securitization risks. The subperiod statistics suggest that for the post-2010 period, auditors don't price the income-related securitization risk, SECINC, significantly (p = 0.215) and the coefficient for SECRISK is positive and close to the 10% significance level (p = 0.124).

If we restrict our sample to only BHCs that engage in asset securitizations (securitizer only subsample), all of our results are qualitatively the same as those reported above.

Audit Fees and Asset Securitization Risks: Further Analyses Using the Individual Asset Securitization Risk Variables

We also individually test each of the correlated asset securitization variables, ABS, RETINT, NPL_SEC, and CHGOFF_SEC. Testing on individual securitization variables necessarily addresses concerns raised in the main tests in at least two dimensions. First, although the component asset securitization risk measure generated by the principal components analysis can better capture the comprehensive securitization risks, it is unobservable in practice and

[27] Untabulated results after excluding BHCs reporting a securitization loss are consistent with the main test results, thus eliminating the concern that negative securitization income drives the relation for SECINC*GFC.

could not give us an intuitive picture. Therefore, the individual tests generate additional information on how auditors price different aspects of securitization risks respectively. Second, due to the high correlations among each other, individual tests are appropriate in this study compared to testing all the 5 securitization risk variables in one regression.

For efficiency, only the results for the four test variables that comprise of the component balance sheet securitization risk measure, SECRISK are reported in Table 7. For the pooled sample for 2003–2011, the results continue to support H1, with positive and significant coefficients for all four variables. The lack of support for H2 is also continued. All the GFC interaction terms for the securitization variables are negative. The partitioned comparison indicates audit fees increase relative to all four variables pre-GFC, but during-GFC, only RETINT remains positive and significant; ABS, NPL_SEC and CHGOFF_SEC become non-significant.

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<Insert Table 7 here>

The FAS 166/167 indicator is positive and significant, suggesting an audit fee increment after 2010. However, the FAS 166/167 interactions do not show significant difference between the pre- vs. post-FAS 166/167 periods in terms of the underlying securitized assets and retained interests. RETINT is still positively priced by auditors, indicating retained interests are consistently noticed before the GFC, during the GFC and after the effectiveness of the FAS 166/167. NPL_SEC is marginally positive after 2010; compared with the pre-GFC period, the magnitude and the significance level are both reduced; compared with the during-GFC period, it shows an increased importance in audit pricing.

Combining the results shown in Table 6 and Table 7, auditors adjust their risk consideration or audit effort in response to overall and specific asset securitization risks for the study

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period. The GFC audit fee fixed effect is consistent with overall business risk and economic changes. The pre-GFC and during-GFC comparisons indicate auditors' focus on securitization risks may have changed with the GFC. Starting in 2007 and peaking in 2008, the deteriorating market conditions and government proposals encouraged financial institutions to re-visit the risk substance of the securitized assets, recognize any losses on the underlying securitized assets and increase the retained components on the balance sheet that was initially off the balance sheet, to make the retained interests and securitization gains or losses more critical in audit risk consideration. Retained interests remained a concern but, as the mean level of retained interests rapidly increased during- the GFC period as on-balance sheet treatments increased while income statement effects (SECINC) declined, the risks of misstatement and audit risk should have fallen correspondingly, reducing audit effort in this regard.

VI. ROBUSTNESS AND SUPPLEMENTARY TESTS

Securitizer Self-Selection Bias

A BHC's decision to engage in securitization transactions may reflect characteristics of the BHC and this self-selection bias may affect our results. Although in the main tests we have controlled for SECURITIZER and find it insignificant, we use a Heckman two-stage approaches to test whether the results are robust to this endogeneity concern.

For the Heckman two-stage approach, we formulate the following first stage securitizer self-selection model for BHCs:

$$SECURITIZER = \alpha + \beta_1 LNTA + \beta_2 BIGN + \beta_3 SECURITIES + \beta_4 MTGLOAN + \beta_5 SENSITIVE + \mu \quad (2)$$

SECURITIZER equals 1 if the bank engages in securitization transactions, 0 otherwise;

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Deleted: seems to be reflected in changed accounting practices. FAS 166 and FAS 167 generally exclude accounting for securitized assets as sales from the end of 2009but, coinciding with the publication of these regulatory changes in 2007 and 2008, banks started to bring securitized assets back to the balance sheet. We suggest this is the main reason for the shift of auditors' attention on asset securitization factors. As BHCs adopted the more conservative accounting practice, auditors should have been less concerned with the possibility of inappropriate sales treatment for off-balance sheet securitized assets and, consequently, less concerned with off-balance sheet risks. Retained interests remained a concern but, as the mean level of retained interests rapidly increased during- the GFC period as on-balance sheet treatments increased while income statement effects (SECINC) declined, the risks of misstatement and audit risk should have fallen correspondingly, reducing audit effort in this regard.¶

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LNTA is the natural log of total assets; BIGN equals 1 if the incumbent auditor is a Big N auditor, 0 otherwise; SECURITIES refers to the investment security assets, including held-to-maturity and available-for-sale securities divided by total assets; MTGLOAN equals mortgage loans/gross loans; CHGOFF is net charge-offs/allowance for loan and lease losses and SENSITIVE is the on-balance-sheet interest rate risk measure, defined as (interest rate-sensitive assets - interest rate-sensitive liabilities)/total assets.

We include LNTA because more resources better enable a bank to manage complex activities, thus increasing the likelihood it will conduct asset securitization transactions. We include BIGN to control for the potential self-selection of auditors by securitizers. We include SECURITIES as banks' investment in securities is often compatible with their asset securitization undertaking in practice and banks. We include MTGLOAN because a BHC's investment in mortgage loans drives asset securitizations, while the credit capacity released by asset securitizations can be re-applied to gear up mortgage loans.

A critical issue in the application of the Heckman two-stage approach is the appropriateness of structural variables in the first stage (Francis et al. 2012). SENSITIVE is used as the structural variable in this study as in practice on of the basic functions of asset securitizations is to offer matched funding to eliminate funding exposure due to assets-liabilities mismatch that can be reflected in the interest-rate sensitivity position (Lederman 1990).[30] The first stage results confirm that SENSITIVE is significantly associated with securitizer selection. SENSITIVE is not related to audit fees as shown in Table 5.

The Inverse Mills Ratio (IMR) from the first stage securitizer selection regression, Model (2),

[30] ^ "The Handbook of Asset-Backed Securities", Jess Lederman, 1990.

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Deleted: We include CHGOFF because prior research demonstrates that banks use asset securitizations for management opportunistic purposes and banks with worse credit quality are more likely to pursue securitization activities (Karaoglu 2005). We include INTDERIV because both asset securitizations and derivatives need expertise and better resources and many derivative transactions emerge from asset securitization transactions.

Deleted: Following Cheng et al. (2011), we use the loan to deposit ratio (LIQUIDITY) as the instrumental variable in our selection model.[29] Prior research establishes a theoretical link between LIQUIDITY and the likelihood of being a

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is then included in the second stage model of audit fees, Model (1). In the second stage regressions for the full sample of BHCs. Regressions partitioned for pre-GFC and during-GFC sub-periods are also estimated. As reported in Table 8, the results are consistent with our main test results. IMR is not significant. The coefficients for SECRISK and SECINC are consistent with the main test results, both for the pooled years 2003–2011 and for the sub-period partitions. These results suggest that self-selection bias is not a problem in this study; and even if it exists, it will not distort our results.

<Insert Table 8 here>

Regardless of self-selection bias, structural differences between the securitizers and the non-securitizers might distort the results for the pooled BHC sample, of which 66% are securitizers.[31] Untabulated results for the securitizer-only pooled sample are consistent with the main test results, with all the securitization risk variables being positive and significant. There is a decrease in the importance of asset securitization risks in audit pricing after the onset of the GFC with respect to SECINC.

GFC Cut-off and the Economic Seizure in 2008 and 2009

Generally the consensus on the GFC commencement and GFC peak are some time points in 2007 (Erkens et al. 2012; Watts and Zuo 2012). However, the ongoing debate on the commencement year of the GFC leads additional sensitivity tests to address the concern on the GFC cut-off. Doogar et al. (2012) argue that the period as 2005-2007 are the years leading

[31] As reported in Table 3, securitizers have much higher audit fees (LNAF) and larger BHC size (LNTA), a higher proportion of securitizers is audited by Big N auditors. Securitizers have lower stock price volatility (STDRET), superior management efficiency (INEFFICIENCY) and higher charge off ratios (CHGOFF). In terms of asset and liability structure, securitizers have higher proportions of transaction accounts (TRANSACCT), mortgage loans (MTGLOAN), intangible assets (INTANG), and off-balance-sheet interest rate derivatives (INTDERIV).

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The matched propensity score approach generates less significant results (untabulated) than the main tests. For 2003–2009, SECINC remains positively associated with audit fees (p = 0.025) but SECRISK is no longer significant (p = 0.113). Partitioning by pre-GFC and during-GFC, SECRISK is marginally positive only for the pre-GFC period (p = 0.072) and SECINC is significantly positive only for the during-GFC period (p = 0.000).[32] Consistent with the main test results, these results suggest a change in auditors' attention to different aspects of securitization risks during the GFC. A possible explanation for the different results for the propensity score matched sample is that the matching procedure eliminated observations for very large BHCs and very high audit fees, which were mainly securitizers. As the very large BHCs are major players in the asset securitization markets, their elimination removes valuable information from our data; therefore, we suggest the matched propensity score results may not be as reliable as the main results or the Heckman results in this case. This view is reinforced by the sensitivity results reported later where we bisect our sample into large and small securitizers.

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to the GFC, implying that 2006 has seen some impact of the GFC and 2007 is heavily influenced by the GFC shocks. Including 2006 might distort imputed pre-GFC auditor behavior because of the likelihood of auditors observing signals of banking distress and financial crisis. It might also be argued that the major influences of the financial crisis were not reflected in the economy until 2008. Estimating our regressions excluding 2006 and 2007 observations respectively and changing the GFC cut-off to 2008 does not affect the main test results (untabulated).

Doogar et al. (2012) argue that it is "difficult to predict and analyze audit risk responses in 2008" due to the complete seizure in the economy prompting unprecedented government intervention in the financial markets (Footnote 1, Doogar et al. 2012). An anonymous reviewer also notes the difficulties in predicting audit risk responses in 2008 and 2009 for the same reason. To address this issue, we retest the pooled sample by excluding 2008 and 2009 data. The adjusted sample consists of 2,489 BHC-year observations with 3 years' pre-GFC data (N = 1,560, for 2003-2006), 1 year during-GFC data (N = 302 for 2007) and 2 years' post-FAS166/167 data (N = 607 for 2010 and 2011). Excluding 2008 and 2009 data does not qualitatively affect the main test results (untabulated).

The Robustness of the One-way Clustering Results

We use one-way clustering on BHCs with year fixed to address the clustering effect. Although two-way clustering is suggested as a "superior" cluster-robust method (Gow et al. 2010), Cameron et al. (2008) document that cluster-robust methods are inappropriate when the number of clusters is small. Gow et al. (2010) suggest a number of clusters greater than 10 can produce unequivocally less biased inferences. As our sample only has 10 clusters in years and less than 4 clusters in the sub-samples, the one-way clustering should be more

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appropriate than a two-way clustering method. The robustness tests using a two-way clustering on BHCs and on years generate consistent while slightly less significant results compared with the main tests (untabulated).

BHC Size Effect

Size effect is a common issue in accounting studies. Entity size explains the vast majority of the variation in audit fees. Hay et al. (2006) indicate that in audit fee studies, the effect of entity size is so significant that we need over 1000 studies with opposite evidence to counter the positive effect of size to audit fees. Although our model already includes a continuous size variable, BHC size is still critical in three dimensions: (1) the mean value of total asset for securitizing firms is nearly eight times the mean of total assets of non-securitizers; and very large BHCs are major players in the asset securitization market; (2) the correlation between LNTA (the BHC size control variable) and SECRISK is nearly identical to the correlation between LNAF (the audit fee measure) and SECRISK; and (3) the almost identify correlations with LNTA and LNAF also exist on other control variables in the model. Therefore, simply control for the BHC size might not be sufficient to control the overwhelming size effect.

We first address the size effect concern by partitioning the sample based on firm size. Pacconi and Reynolds (2009) suggest partitioning the pooled sample into quintiles/deciles in size and by year to correct the potential size effect bias. However, this might not be suitable for a pooled sample with not very large sample size. In this study, partitioning the sample into quintiles or deciles will lead to small subsample size. Our untabulated trial suggests that although Pacconi and Reynolds (2009) suggest that partitioning into quintiles and by year can increase the explanation power, when we partition our sample by quintile and year, the

adjusted R-squared has dropped drastically below 50%. To compromise, we partition the pooled sample into half based on the BHC size. Untabulated results indicate that large BHCs and small BHCs (above and below median) are significantly different in their financial risks and asset securitization risks. Using an indicator variable for large BHCs, untabulated results indicate that large BHCs pay lower audit fees than small BHCs after controlling for the other factors that affect audit fees. The results from the subsample with a large BHC size are consistent with the main tests. It is noted that although the results for the small BHC subsample produce less significant (still consistent) results, the magnitudes of securitization risk premiums in the small BHC subsample are greater than those for the large BHCs. Auditors may charge higher asset securitization premiums for small banks due to concerns over their experience and capacity in asset securitization management, also out of the "too large to fail" prophecy that large banks are less likely to fail than small banks even under the same financial risk status.

A two-stage residual audit fee model is also used to address the size effect. We first regress the basic model (Model 1) by year to get the fitted values and residuals of LNAF; then we regress the residuals of LNAF on the test variables in the second stage. The potential size effect is assumed to have been controlled within the first stage. The two-stage residual method generates consistent results with the main tests. Also noted is that the securitizers are clustered in large BHCs, and a securitizer-only subsample test can differentiate the potential bias due to the size effect on securitizers. Untabulated results report consistent results for the securitizer-only subsample.

Auditor Switches and Big N Auditors

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We add an auditor change indicator to the model to control for auditor switches, and find no

effect on the main results. BHC audit fees are significantly reduced by auditor switches, but the interaction term between the auditor change and GFC indicator variables, and the pre-GFC and during-GFC sub-period analyses, indicate no significant change in the effects of auditor switching on audit fee determination during the GFC.

Our main results show that auditor type affects audit fees, with Big N auditors having systematically higher fees. Therefore, we test whether the effect of securitization risks on audit fees differs between Big N and non-Big N auditors. Our untabulated results indicate that the GFC indicator, and SECRISK and SECINC are significant and positive for both the Big N and non-Big N subgroups. The Big N premium decreases to some extent during the GFC.

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Regulations and Accounting Standards

The banking industry is under stricter regulation and supervision compared to other industries. One example of the multiple layers of regulation on the banking industry is FDICIA that requires independent auditors' attestation on management reports on compliance and internal control effectiveness since 1993, implemented ten years earlier than SOX Section 404. The requirement of auditors' attestations on management reports on compliance and internal control effectiveness is effective throughout our study period in the banking industry with small banks exempted under FDICIA after 1993 and non-accelerators exempted under SOX Section 404 after 2004.

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The main tests include EXEMPT as a control variable to identify audit fee premiums due to different engagement requirements exempted by FDICIA and SOX Section 404 for small BHCs and find significant audit fee premiums on non-exempted banks. Of 3,051 BHC-year observations in the sample, 646 BHCs are exempted. Untabulated statistics show that exempted banks are much smaller in size; only 13.6% exempted BHCs are audited by Big N

auditors compared with 56.4% non-exempted BHCs as Big N clients. Exempted banks have higher market volatility, of higher percentage to incur a financial loss, higher proportion of mortgage loan involvement while lower proportion on commercial loans. The intangible assets including goodwill is lower for exempted banks, and both on-balance sheet and off-balance sheet interest rate risks are lower in exempted banks. More importantly, an exempted bank is less likely to be a securitizer. The main test results hold for the non-exempted banks but not for the exempted banks. We attribute it to the BHC size difference between exempted and non-exempted banks and small exempted bank sample size (N = 646 for 9 years) and smaller number of exempted banks involved in asset securitization transactions.

FAS 157 issued in September 2006 established a measurement hierarchy for fair value based on whether the inputs were "observable" or "unobservable". Market-priced observable inputs are ranked higher and more prioritized over firm-supplied unobservable inputs in fair value measurements. When the market price is not observable, firm-supplied fair value, usually established with internal model based on assumptions set by the firm itself could be used to measure fair value. As criticized by professionals, FAS 157 provides support from accounting standards for the discretionary use of internal model in the fair value measurements, which is critical in asset securitization transactions, especially in cases where the market inputs are not reliable and are poor quality signals (e.g., during crisis period), or when the assets or liabilities are distinct from the assets or liabilities with available inputs in the market (e.g., the assets and liabilities incurred during individual securitizations).

We control for Level 3 assets, defined as asset market value is unobservable and its fair value is measured based on the bank's internal model, in the additional tests and argue this category of assets are particularly relevant with asset securitization transactions. Doogar et al. (2012) control

Level 3 assets for the 2007 dataset. Our data indicates that there are only small number of banks report Level 3 asset in 2007 (N=7). Therefore, we start to control Level 3 assets from 2008. Controlling for Level 3 assets do not affect the main test results.

BHC Failure and Distress

Arguably bank auditors charge fee premiums on banks with anticipated subsequent business failure or distress risk, especially in a financial crisis environment (Hill et al. 1994). In relation to asset securitization risks, although asset securitization is identified as one of the major contributors of the subprime crisis and the subsequent GFC, in which financial institutions have experienced extensive financial distress with increased number of bank failure record, it is noted that the effect of financial distress threat, if observable, should be pervasively in all the risk areas within the financial institution. Facing clients' business failure threat, auditors may generally accelerate the risk consideration to the specific clients and/or choose to give special considerations on specific risk areas, for example, the asset securitization risks, that are particularly noticeable for distressed bank. Also relevant is the "too large to fail" prophecy in the banking industry. Under similar business failure threats, large banks will have priority to receive government assistance and remedy due to the critical influence of large financial institution failure to the economy; and the finally failed banks are usually of not large size. In the additional tests, we control for subsequent failed and distressed bank (FAIL). We expect a pervasive fee premium on subsequent failure or distress risk (FAIL); we also expect an incremental audit fee premium on asset securitizations and other financial risks that are critical to the financial distress for subsequent failed and distressed banks compared with non-failed banks.

The pooled dataset has 221 BHC-year observations labeled as "subsequently failed or

Deleted: **The Impact of BHC Size**¶
Although our model already includes a continuous size variable, we also consider a categoric size effect because untabulated results indicate that large BHCs and small BHCs (above and below median) are significantly different in their financial risks and asset securitization risks. Using an indicator variable for large BHCs, untabulated results indicate that large BHCs pay lower audit fees than small BHCs after controlling for the other factors that affect audit fees. Large and small BHC subsample comparisons indicate that the positive effect of SECRISK is more significant for the large BHC subsample ($p = 0.002$) compared to the small BHC subsample ($p = 0.064$). SECINC is positive and significant for large BHCs ($p = 0.013$) but is not significant for the small BHC subgroup ($p = 0.164$). The during-GFC increase in audit fees is significantly larger for the large BHCs than the small BHCs. These results support our explanation for the results using the propensity score matched sample regarding the problem of excluding large BHCs from the dataset.¶
The Impact of Subsequent

distressed banks", attributable to 38 BHCs with an average total assets of $145 billion, based on the FDIC failed bank list.[33] Untabulated statistics show that failed and distressed banks are marginally larger in size, indicating that the "too large to fail" prophecy may not apply at least in the GFC environment when both small and large banks face similar liquidity drainage and economic downturn. It is not strange that subsequently failed or distressed BHCs are less efficient, suffer greater losses, and have worse charge-off ratio, worse non-performing ratios and lower capital ratio. Subsequently failed or distressed banks also have lower levels of transaction accounts, smaller investments in securities, lower ratios of commercial loans and mortgage loans, lower levels of intangible assets, and are more involved in interest derivative transactions compared to non-failed BHCs. Subsequently failed or distressed banks are more involved in asset securitization transactions than non-failed BHCs, seemingly show an association between asset securitizations and bank failures for the studied period.

Opposite to our prediction, FAIL, the subsequent failure or distress indicator, is not significant in the untabulated regression results. Instead, we find that auditors price differently for financial risks and asset securitization risks for non-failed banks and failed banks. For subsequently failed or distressed banks, its financial loss position (LOSS) is more highlighted by auditors compared with non-failed banks. SECRISK is significant for non-failed banks but not significant in the failed or distressed banks. SECINC is more focused for subsequently failed or distressed banks both in the magnitude and in its significance level, suggesting that auditors were more sensitive to securitization earnings

[33] Source: http://www.fdic.gov/bank/individual/failed/banklist.html
FDIC 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 FDIC assistance in 2009-2010. Failure and assistance statistics are from the FDIC site http://www2.fdic.gov/hsob/ last accessed May 26, 2011.

Deleted: The effect of asset securitization risks on audit fees may be influenced by subsequent bank failures if auditors anticipated that BHCs with greater asset securitization risks were more likely to fail. To control for whether a BHC failed in the following year, we classified a BHC as failed if it or one of its subsidiaries filed for bankruptcy in the following year. Most of the failed banks failed after the commencement of the GFC and are related to the securitization market or the mortgage market changes.¶
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performance when the BHC was in a financial distress. GFC is a positive and significant factor on audit fees for non-distressed banks, but is not significant for failed banks, indicating that after the occurrence of the GFC auditors increase audit effort, only for banks without observable potential financial distress; for banks under potential financial distress, auditors may have already alerted to the risks associated with the distressed BHCs pre-GFC, so audit effort is not increased during-GFC, other than in relation to securitization income and the overall financial loss position.

VII. CONCLUSIONS AND DISCUSSION

We investigate whether asset securitization risks are related to audit fees of bank holding companies (BHCs). Using publicly available US BHC data from 2003 to 2011, we find that asset securitization risks have a significant and positive association with audit fees, indicating auditors were attentive to securitization risks both before and during the global financial crisis (GFC). Our results are not driven by self-selection bias and the BHC size effect, and are robust to subsample tests omitting non-securitizers, variations in the GFC cut-off year, excluding the years under the GFC economic seizure, and split-sample tests for auditor changes and auditor type. The variations in relations we observe following the onset of the GFC and for financially distressed BHCs suggests auditors have a reasonably nuanced appreciation of the risks associated with asset securitization.

Although several studies in finance and financial accounting have investigated various aspects of asset securitization risks, no published study has focused on how asset securitizations affect audit fees. This is a significant gap because asset securitizations are economically material activities involving significant audit risk and risks of material misstatement. Our examination of the relations between asset securitization risks and audit

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fees addresses this knowledge gap and is a timely contribution to the auditing and banking literature. Using the lens of audit pricing to provide insights into auditors' behaviors in relation to asset securitization risks also contributes to the limited bank auditing literature. Our results are relevant to commentators, the audit profession, financial market participants and researchers.

The GFC highlighted the material impact of asset securitization on the economy, financial markets and individual firms, and criticisms of auditors' effort and capability in auditing asset securitizations arose after a number of audit failure cases related to asset securitizations in the banking industry. In response to the criticism of "where were the auditors in asset securitization ?", our evidence that auditors did respond to asset securitization risks before the GFC and that auditors modified their risk focus during the GFC goes some way to countering criticisms of the audit profession around the financial crisis. In the UK's House of Lords report, it is stated that audit professionals claim that auditors "do look at the market conditions" (p.40, UK House of Lords 2011) and carried out their duties with additional effort on asset securitizations. Our results are consistent with those claims.

The relatively stable regulatory and accounting environment during 2003 to 2009 is an excellent context in which to examine the (non)persistence of the auditor behavior in relation to asset securitizations when the economic environment changed from prosperity to recession. The subsequent post-FAS 166/167 period provide benchmarks when sales accounting and non-consolidation of asset securitization have been removed by accounting standards that largely decreases audit risks associated with asset securitizations. However, there are several limitations to our analyses. Because securitization data only became fully available from 2003 and changes in accounting standards in 2009 significantly changed the

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accounting treatment of securitizations, generalizability of our results might be limited to our study period. The seven year span before and during the GFC and the two year benchmark post-FAS 166/167 period may not be a sufficient time frame to capture all changes in auditors' responses to securitization issues. Also merely documenting an association between audit fees and securitization risks may not give us more insights about how auditors behavior responds to securitization risks or the GFC. Without looking at actual labor hours or the billing rate charged to the clients, it is impossible to make promising statements about auditor responses and behaviour. Moreover, because we consider only the audit effort implications of asset securitizations, the public or regulators may look for more direct evidence concerning the contribution of audits to reporting quality, and audit quality in relation to securitization activities; we leave this opportunity for future research. Nonetheless, our findings that audit fees reflect asset securitization risks should be meaningful to the profession and to the financial market participants.

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TABLE 1
Variable Definitions

Variable		Definition
ABS	=	total outstanding securitized assets, deflated by total assets.
ABS_AMT	=	total outstanding securitized assets.
AUDIT_FEE	=	dollar amount of annual audit fee.
BIGN	=	1 if the incumbent auditor is a Big 4 auditor, 0 otherwise.
CAPRATIO	=	risk-adjusted capital ratio, defined as total amount of bank regulatory capital divided by risk-weighted assets.
CHGOFF	=	net charge-offs/allowance for loan and lease losses.
CHGOFF_SEC	=	total charge-offs for securitized loans scaled by total assets.
CHGOFF_SEC_AMT	=	total charge-offs for securitized loans.
COMMLOAN	=	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.
EXEMPT	=	1 if the BHC is exempted under FDICIA and SOX Section 404 from auditors' attestation of management reports on compliance and internal control effectiveness; and 0 otherwise.
FAIL	=	1 if the BHC or one of its subsidiaries filed for bankruptcy or received government financial assistance in the following year.
FAS166/167	=	1 for years 2010 and 2011 when FAS 166 and FAS 167 were implemented, and 0 otherwise.
GFC	=	1 for years from 2007 to 2009, and 0 for years from 2003 to 2006.
IMR	=	Inverse Mills Ratio from the first stage regression.
INEFFICIENCY	=	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).
INTANG	=	intangible assets/total assets.
INTDERIV	=	notional amount of interest rate derivatives divided by total assets.
LOSS	=	1 if the BHC reports a loss, 0 otherwise.
LNAF	=	natural logarithm of annual audit fee.
LNTA	=	natural logarithm of total assets.
MTGLOAN	=	mortgage loans/gross loans.
NONPERFORM	=	non-performing loans/gross loans. Non-performing loans are defined as loans ≥ 90 day past due, non-accrual loans, leases and other assets.
NPL_SEC	=	total non-performing securitized loans scaled by total assets.

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TABLE 1 (continued)

Variable		Definition
NPL_SEC_AMT	=	total nonperforming securitized loans.
RETINT	=	total retained interests, including retained interest only strips, retained credit enhancements, and unused commitments to provide liquidity (service advances), deflated by total assets.
RETINT_AMT	=	total retained interests, including retained interest only strips, retained credit enhancements, and unused commitments to provide liquidity (service advances).
SAVING	=	1 if the BHC is a savings institution, 0 otherwise.
SECINC	=	net securitization income divided by net income.
SECINC_AMT	=	relative gains on securitization, calculated as the net securitization income.
SECRISK	=	a composite asset securitization risk measure generated from ABS, RETINT, NPL_SEC and CHGOFF_SEC using principal components analysis.
SECURITIES	=	investment security assets, including held-to-maturity and available-for-sale securities, divided by total assets.
SECURITIZER	=	1 if the bank engages in securitization transactions, 0 otherwise.
SENSITIVE	=	on-balance-sheet interest rate risk measure, defined as (interest rate-sensitive assets - interest rate-sensitive liabilities)/total assets.
STDRET	=	one-year standard deviation of daily stock returns.
TOTAL_ASSETS	=	total assets of the BHC.
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 deposits.

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TABLE 2
Asset Securitization Risk Measures (N = 3,051)

Panel A: Distributional Characteristics of the Asset Securitization Risk Variables

Variables	Mean	Median	Min	Q1	Q3	Max	Std dev
ABS	0.020	0	0	0	0	7.678	0.182
RETINT	0.001	0	0	0	0	0.096	0.005
NPL_SEC	0.001	0	0	0	0	0.257	0.009
CHGOFF_SEC	0.000	0	0	0	0	0.074	0.002
SECINC	0.015	0	-75.340	0	0.019	7.799	1.414
SECRISK	0.000	-0.175	-0.178	-0.175	0	16.270	0.815
SECURITIZER	0.664	1	0	0	1	1	0.472

Panel B: Pearson Correlations of the Asset Securitization Risk Variables

Variables	ABS	RETINT	NPL_SEC	CHGOFF_SEC	SECINC	SECRISK	SECURITIZER
ABS	1.000						
RETINT	0.255	1.000					
	(<.0001)						
NPL_SEC	0.717	0.334	1.000				
	(<.0001)	(<.0001)					
CHGOFF_SEC	0.259	0.463	0.335	1.000			
	(<.0001)	(<.0001)	(<.0001)				
SECINC	0.018	-0.009	0.022	-0.061	1.000		
	(-0.325)	(-0.619)	(-0.222)	(-0.001)			
SECRISK	0.784	0.653	0.837	0.658	-0.007	1.000	
	(<.0001)	(<.0001)	(<.0001)	(<.0001)	(0.707)		
SECURITIZER	0.078	0.079	0.084	0.056	0.008	0.000	1.000
	(<.0001)	(<.0001)	(<.0001)	(0.002)	(0.670)	(1.000)	

Note: Two-tailed p-values are presented in parentheses.

Panel C: Weight (Standardized Scoring Coefficients) on the Four Asset Securitization Risk Measures in the Component Factor (SECINC excluded due to lack of correlation with other variables)

Weight	ABS	RETINT	NPL_SEC	CHGOFF_SEC	SECINC	Variance Explained	Eigenvalue
SECRISK	0.360	0.300	0.384	0.301		54.7%	2.186
SECINC					N/A		

Variables are defined in Table 1.

TABLE 3
Descriptive Statistics for the Sample

Panel A: Pooled BHC data from 2003 to 2011

	Pooled BHC Data from 2003 to 2011						
	Mean	Median	Min	Q1	Q3	Max	Std dev
N				3051			
Dependent Variable							
AUDIT_FEE ($,000)	1,478.738	289.700	0.683	147.000	672.800	96,600.000	6,404.928
LNAF	12.780	12.577	6.528	11.898	13.419	18.386	1.300
Test Variables							
ABS_AMT ($,000)	4,861.626	0	0	0	0	972,037.261	42,798.590
RETINT_AMT ($,000)	119.709	0	0	0	0	99,821.000	1,980.348
NPL_SEC_AMT ($,000)	550.966	0	0	0	0	207,818.046	7,458.846
CHGOFF_SEC_AMT ($,000)	83.616	0	-39.000	0	0	36,706.288	1,097.637
SECINC_AMT ($,000)	78.876	24	-4,774.000	0	474	11,657.985	691.486
ABS	0.020096	0	0	0	0	7.678218	0.182359
RETINT	0.000543	0	0	0	0	0.095664	0.004915
NPL_SEC	0.001067	0	0	0	0	0.257472	0.009029
CHGOFF_SEC	0.000180	0	-0.000068	0	0	0.074002	0.002268
SECINC	0.015370	0.000295	-75.340428	0	0.019272	7.799074	1.414033
SECRISK	0.000000	-0.174741	-0.177879	-0.174741	0	16.269652	0.815023
Control Variables							
TOTAL ASSETS ($,000)	30,239,891	1,706,423	158,719	814,316	5,224,412	2,268,347,377	178,052,313
LNTA	21.640	21.258	18.883	20.518	22.377	28.450	1.626
BIGN	0.473	0	0	0	1	1	0.499
STDRET	0.345	0.080	0.007	0.021	0.703	38.455	0.865
SAVING	0.060	0	0	0	0	1	0.238
LOSS	0.132	0	0	0	0	1	0.339
CAPRATIO	13.990	13.230	-2.630	11.750	15.220	99.910	5.062
TRANSACCT	0.584	0.588	0	0.490	0.690	0.999	0.155
SECURITIES	0.206	0.187	0	0.127	0.268	0.941	0.117
COMMLOAN	0.165	0.147	0	0.094	0.212	0.782	0.102
MTGLOAN	0.300	0.296	0	0.197	0.381	1.000	0.149
INTANG	0.017	0.010	0	0.002	0.025	0.311	0.022
CHGOFF	0.404	0.280	0	0.127	0.565	3.532	0.405
NONPERFORM	0.019	0.009	0	0.004	0.024	0.500	0.027
INEFFICIENCY	0.774	0.752	0.334	0.692	0.818	3.243	0.163
SENSITIVE	0.089	0.085	-6.627	-0.016	0.205	0.848	0.217
INTDERIV	0.343	0.003	0	0	0.045	56.268	2.881
EXEMPT	0.212	0	0	0	0	1	0.409
SECURITIZER	0.664	1	0	0	1	1	0.472

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 unequal variances. It provides a t statistic that symptotically approaches a t distribution, allowing for an approximate t test to be calculated. ***, **, and * denote statistical significance at 1%, 5% and 10% based on two-tailed tests. Variables are defined in Table 1.

Commented [Y18]: Reviewer 1 Comment No. 11 suggests to simply report the pre- vs. post-GFC periods and test of differences. Reviewer 2 Comment No. 6 (b) suggests more detailed descriptive statistics including mean, median, Q1, Q3 min and max.

Panel B: Distributions of the Pre-GFC, During-GFC and Post-FAS166/167 Subsamples

	Pre-GFC (2003-2006)	During-GFC (2007-2009)	Difference in Means Pre- vs. During-GFC[1]		Post-FAS 166/167 (2010-2011)	Difference in Means between During-GFC vs. Post-FAS166/167	
	Mean	Mean	T-stat	p-value	Mean	T-stat	p-value
N	1560	864			627		
Dependent Variable							
AUDIT_FEE ($,000)	1,071.581	1,669.092	-2.30	0.022	2,229.454	-1.26	0.207
LNAF	12.557	13.021	-8.80	<.0001	13.003	0.27	0.790
Test Variables							
ABS_AMT ($,000)	3,596,544	7,323,129	-1.69	0.091	4,617,272	1.04	0.300
RETINT_AMT ($,000)	77,733	249,470	-1.39	0.164	45,338	1.64	0.100
NPL_SEC_AMT ($,000)	172,614	939,477	-2.08	0.038	956,953	-0.03	0.974
CHGOFF_SEC_AMT ($,000)	36,730	141,709	-1.89	0.059	120,220	0.27	0.784
SECINC_AMT ($,000)	84,322	99,063	-0.46	0.649	37,508	1.84	0.066
ABS	0.026336	0.013961	1.86	0.064	0.013024	0.23	0.817
RETINT	0.000642	0.000558	0.37	0.711	0.000279	1.10	0.269
NPL_SEC	0.001013	0.001031	-0.05	0.959	0.001253	-0.53	0.598
CHGOFF_SEC	0.000202	0.000182	0.22	0.825	0.000121	0.86	0.390
SECINC	0.044764	-0.054462	1.13	0.260	0.038467	-1.02	0.307
SECRISK	0.016730	-0.011987	0.88	0.378	-0.025107	0.42	0.672
Control Variables							
TOTAL ASSETS ($,000)	21,246,450	37,190,078	-2.02	0.044	43,038,626	-0.50	0.619
LNTA	21.436	21.867	-6.38	<.0001	21.835	0.38	0.707
BIGN	0.522	0.435	4.14	<.0001	0.404	1.22	0.221
STDRET	0.340	0.290	3.14	0.002	0.436	-2.06	0.040
SAVING	0.062	0.039	2.47	0.014	0.086	-3.59	0.000
LOSS	0.016	0.275	-16.70	<.0001	0.225	2.24	0.025
CAPRATIO	13.759	13.289	2.09	0.037	15.531	-8.35	<.0001
TRANSACCT	0.583	0.547	5.67	<.0001	0.638	-11.45	<.0001
SECURITIES	0.219	0.179	8.55	<.0001	0.212	-5.93	<.0001
COMMLOAN	0.167	0.167	0.01	0.989	0.159	1.57	0.116
MTGLOAN	0.304	0.283	3.38	0.001	0.316	-4.55	<.0001
INTANG	0.017	0.020	-2.90	0.004	0.015	4.59	<.0001
CHGOFF	0.236	0.515	-16.83	<.0001	0.668	-6.37	<.0001
NONPERFORM	0.007	0.027	-18.22	<.0001	0.038	-6.28	<.0001
INEFFICIENCY	0.738	0.833	-12.57	<.0001	0.784	4.59	<.0001
SENSITIVE	0.106	0.059	5.39	<.0001	0.088	-3.10	0.002
INTDERIV	0.254	0.320	-0.63	0.530	0.600	-1.44	0.151
EXEMPT	0.221	0.188	1.99	0.047	0.222	-1.61	0.108
SECURITIZER	0.657	0.675	-0.89	0.375	0.668	0.26	0.792

Panel C: Securitizers and Non-securitizers from 2003 to 2011

	Non-Securitizer					Securitizer					Difference in Means[1]	
	Mean	Median	Min	Max	Std dev	Mean	Median	Min	Max	Std dev	T-stat	p-value
N	1024					2027						
Dependent Variable												
AUDIT_FEE ($,000)	602.844	189.010	9.500	46,600.000	3,007.525	1,921.223	380.300	0.683	96,600.000	7,523.728	-6.88	<.0001
LNAF	12.245	12.150	9.159	17.657	1.033	13.050	12.849	6.528	18.386	1.337	-18.36	<.0001
Test Variables												
ABS_AMT ($,000)						7,317,623	0	0	972,037,261	52,340,646		
RETINT_AMT ($,000)						180,184	0	0	99,821,000	2,427,563		
NPL_SEC_AMT ($,000)						829,302	0	0	207,818,046	9,139,075		
CHGOFF_SEC_AMT ($,000)						125,858	0	-39,000	36,706,288	1,344,780		
SECINC_AMT ($,000)						118,723	223	-4,774,000	11,657,985	845,632		
ABS						0.030248	0	0	7.678218	0.223060		
RETINT						0.000818	0	0	0.095664	0.006012		
NPL_SEC						0.001607	0	0	0.257472	0.011039		
CHGOFF_SEC						0.000270	0	-0.000068	0.074002	0.002778		
SECINC						0.023135	0.008551	-75.340428	7.799074	1.7349097		
SECRISK						0.000000	-0.174741	-0.177879	16.269652	1		
Control Variables												
TOTAL ASSETS ($,000)	5,577,701	1,009,121	158,719	558,563,489	34,994,898	42,698,738	2,391,012	180,570	2,268,347,377	215,974,505	-7.54	<.0001
LNTA	20.957	20.732	18.883	27.049	1.149	21.985	21.595	19.012	28.450	1.720	-19.61	<.0001
BIGN	0.279	0	0	1	0.449	0.571	1	0	1	0.495	-16.38	<.0001
STDRET	0.450	0.313	0.009	5.011	0.430	0.293	0.056	0.007	38.455	1.013	5.99	<.0001
SAVING	0.039	0	0	1	0.194	0.071	0	0	1	0.257	-3.84	0.000
LOSS	0.142	0	0	1	0.349	0.128	0	0	1	0.334	1.05	0.294
CAPRATIO	13.980	13.45	-2.63	40.84	3.444	13.995	13.09	-1.26	99.91	5.708	-0.09	0.925
TRANSACCT	0.568	0.561	0	0.999	0.166	0.592	0.598	0	0.964	0.148	-3.90	<.0001
SECURITIES	0.210	0.184	0.002	0.941	0.133	0.205	0.188	0.000	0.779	0.108	1.09	0.278
COMMLOAN	0.161	0.129	0.000	0.782	0.117	0.168	0.157	0.000	0.626	0.094	-1.73	0.084
MTGLOAN	0.275	0.268	0	1.000	0.139	0.313	0.309	0	0.990	0.152	-6.87	<.0001
INTANG	0.011	0.006	0	0.125	0.015	0.021	0.014	0	0.311	0.024	-13.60	<.0001
CHGOFF	0.368	0.219	0	3.532	0.429	0.422	0.312	0	3.328	0.392	-3.35	0.001
NONPERFORM	0.018	0.007	0	0.500	0.030	0.020	0.010	0	0.278	0.025	-1.26	0.206
INEFFICIENCY	0.789	0.765	0.421	2.167	0.167	0.767	0.747	0.334	3.243	0.161	3.54	0.000
SENSITIVE	0.081	0.072	-0.535	0.848	0.185	0.093	0.094	-6.627	0.715	0.231	-1.51	0.131
INTDERIV	0.025	0	0	1.438	0.070	0.505	0.0085233	0	56.268	3.524	-6.13	<.0001
SECURITIZER						1	1	1	1	0		

TABLE 4
Pearson Correlations (N = 3,051 Sample Period: 2003–2011)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. LNAF	1.000																	
2. LNTA	0.918[c]	1.000																
3. BIGN	0.588[c]	0.545[c]	1.000															
4. STDRET	-0.220[c]	-0.250[c]	-0.175[c]	1.000														
5. SAVING	-0.093[c]	-0.095[c]	-0.064[c]	0.055[c]	1.000													
6. LOSS	0.050[c]	-0.012	-0.111[c]	0.038[b]	-0.010	1.000												
7. CAPRATIO	0.070[c]	0.009	0.056[c]	0.003	0.039[b]	-0.105[c]	1.000											
8. TRANSACCT	0.148[c]	0.160[c]	0.199[c]	-0.088[c]	-0.020	-0.174[c]	0.131[c]	1.000										
9. SECURITIES	0.003	0.027	0.164[c]	-0.005	-0.048[c]	-0.158[c]	0.290[c]	0.128[c]	1.000									
10. COMMLOAN	0.194[c]	0.183[c]	0.220[c]	-0.099[c]	-0.109[c]	-0.083[c]	-0.039[b]	0.279[c]	-0.017	1.000								
11.MTGLOAN	-0.077[c]	-0.010	-0.025	0.051[c]	0.195[c]	-0.048[c]	0.004	-0.041[b]	0.098[c]	-0.446[c]	1.000							
12. INTANG	0.414[c]	0.403[c]	0.268[c]	-0.145[c]	0.023	-0.109[c]	0.328[c]	0.186[c]	-0.047[c]	0.043[b]	0.005	1.000						
13. CHGOFF	0.222[c]	0.175[c]	-0.020	0.020	-0.036[b]	0.505[c]	0.123[c]	-0.049[c]	-0.119[c]	0.016	-0.060[c]	0.052[c]	1.000					
14. NONPERFORM	0.139[c]	0.074[c]	-0.084[c]	0.183[c]	-0.020	0.537[c]	-0.033[a]	-0.154[c]	-0.097[c]	-0.085[c]	-0.029	-0.091[c]	0.502[c]	1.000				
15. INEFFICIENCY	-0.069[c]	-0.147[c]	-0.181[c]	0.183[c]	0.026	0.558[c]	-0.133[c]	-0.226[c]	-0.079[c]	-0.108[c]	0.024	-0.140[c]	0.297[c]	0.336[c]	1.000			
16. SENSITIVE	0.228[c]	0.233[c]	0.193[c]	-0.078[c]	-0.051[c]	-0.070[c]	0.038[b]	0.273[c]	-0.119[c]	0.217[c]	-0.178[c]	0.090[c]	-0.027	-0.081[c]	-0.133[c]	1.000		
17. INTDERIV	0.389[c]	0.403[c]	0.119[c]	-0.032[a]	-0.022	-0.020	0.007	0.014	-0.090[c]	0.057[c]	0.011	0.077[c]	0.092[c]	0.037[b]	-0.013	0.069[c]	1.000	
18. EXEMPT	-0.468[c]	-0.501[c]	-0.350[c]	0.279[c]	0.148[c]	0.039[b]	0.016	-0.159[c]	-0.040[b]	-0.154[c]	0.057[c]	-0.229[c]	-0.073[c]	0.022	0.155[c]	-0.117[c]	-0.060[c]	1.000
19. SECURITIZER	0.293[c]	0.299[c]	0.276[c]	-0.086[c]	0.063[c]	-0.019	0.001	0.073[c]	-0.021	0.034[a]	0.120[c]	0.208[c]	0.062[c]	0.024	-0.065[c]	0.025	0.079[c]	-0.216[c]
20. ABS	0.166[c]	0.170[c]	0.065[c]	-0.028	0.042[b]	-0.001	0.047[c]	-0.004	-0.040[b]	-0.048[c]	0.141[c]	0.147[c]	0.058[c]	0.041[b]	-0.019	0.051[c]	0.091[c]	-0.019
21. RETINT	0.207[c]	0.206[c]	0.115[c]	-0.038[b]	-0.014	0.020	0.080[c]	-0.061[c]	0.000	-0.032[a]	-0.023	0.107[c]	0.091[c]	0.086[c]	-0.055[c]	0.034[a]	0.100[c]	-0.057[c]
22. NPL_SEC	0.273[c]	0.277[c]	0.108[c]	-0.037[b]	0.072[c]	0.030[a]	0.035[a]	-0.008	-0.062[c]	-0.042[b]	0.166[c]	0.148[c]	0.086[c]	0.115[c]	-0.014	0.065[c]	0.248[c]	-0.052[c]
23. CHGOFF_SEC	0.182[c]	0.186[c]	0.083[c]	-0.028	-0.020	0.000	0.093[c]	-0.037	-0.048[c]	-0.016	-0.035[a]	0.121[c]	0.114[c]	0.027	-0.045[b]	0.030[a]	0.161[c]	-0.041[b]
24. SECINC	0.000	-0.006	0.003	-0.001	0.005	-0.072[c]	-0.001	0.007	-0.006	0.007	0.019	-0.025	-0.014	0.001	0.004	0.006	0.027	0.001
25. SECRISK	0.253[c]	0.256[c]	0.097[c]	-0.036[b]	0.026	0.020	0.083[c]	-0.042[b]	-0.051[c]	-0.051[c]	0.085[c]	0.158[c]	0.110[c]	0.090[c]	-0.036[b]	0.060[c]	0.199[c]	-0.035[c]

Note: Two-tailed p-values: [a] $p < 0.10$, [b] $p < 0.05$; [c] $p < 0.01$. The Pearson correlations between the individual asset securitization risk variables are presented in Table 2. Variables are defined in Table 1.

TABLE 5
Basic Model Fitting and Validation of Audit Fee Model

Pooled Sample: 2003 to 2011 (Dependent Variable: LNAF)

		(1) Fields et al. (2004) Model			(2) Extended Model			(3) With EXEMPT		
Variable	**Expected Sign**	**Coef**	**T-Stat**	**p-value**	**Coef**	**T-Stat**	**p-value**	**Coef**	**T-Stat**	**p-value**
INTERCEPT	+	-2.28	-5.57	0.000	-1.83	-4.05	0.000	-1.66	-3.28	0.001
LNTA	+	0.65	34.06	0.000	0.63	29.56	0.000	0.62	26.20	0.000
BIGN	+	0.43	11.93	0.000	0.44	12.31	0.000	0.44	12.37	0.000
STDRET	+	-0.01	-0.64	0.261	-0.01	-0.80	0.212	-0.01	-0.64	0.260
SAVING	+	0.02	0.30	0.381	0.02	0.29	0.386	0.02	0.47	0.319
LOSS	+	0.01	0.14	0.443	0.02	0.45	0.327	0.02	0.45	0.325
CAPRATIO	+	0.02	5.17	0.000	0.02	5.01	0.000	0.02	5.02	0.000
TRANSACCT	+	0.03	0.28	0.388	0.04	0.34	0.368	0.03	0.24	0.405
SECURITIES	+	-0.34	-2.11	0.018	-0.26	-1.65	0.050	-0.26	-1.64	0.051
COMMLOAN	+	-0.01	-0.04	0.485	-0.02	-0.05	0.479	-0.02	-0.06	0.476
MTGLOAN	+	-0.50	-3.37	0.000	-0.50	-3.31	0.001	-0.49	-3.24	0.001
INTANG	+	1.14	1.38	0.084	1.51	1.79	0.037	1.49	1.78	0.038
CHGOFF	+	0.05	1.28	0.100	0.05	1.26	0.104	0.05	1.20	0.116
NONPERFORM	+	2.93	3.65	0.000	2.98	3.69	0.000	2.99	3.67	0.000
INEFFICIENCY	+	0.45	4.40	0.000	0.42	4.08	0.000	0.42	4.14	0.000
SENSITIVE	-	0.00	-0.04	0.483	0.01	0.19	0.423	0.02	0.29	0.387
INTERDIV		-	-	-	0.02	3.57	0.000	0.02	3.58	0.000
EXEMPT		-	-	-	-	-	-	-0.06	-1.50	0.067
		Year Indicators Clustered on BHCs			Year Indicators Clustered on BHCs			Year Indicators Clustered on BHCs		
N		3,051			3,051			3,051		
Adjusted R^2		0.889			0.890			0.891		
F-Value		222.18; p < .0001			254.63; p < .0001			243.65; p < .0001		

Note: Standard errors are clustered on BHCs and models control for year fixed effects. All p values are one-tailed because of directional predictions.
Variables are defined in Table 1.

TABLE 6
Audit Fees and Asset Securitization Risks
Panel A: Pooled BHC Data 2003-2011

	Pooled 2003–2011								
	Coef	**T-Stat**	**p-value**	**Coef**	**T-Stat**	**p-value**	**Coef**	**T-Stat**	**p-value**
INTERCEPT	-1.53	-2.92	0.002	-1.54	-2.92	0.002	-1.55	-2.94	0.002
SECRISK	**0.04**	**2.98**	**0.002**	**0.03**	**2.16**	**0.016**	**0.04**	**3.21**	**0.001**
SECINC	**0.01**	**1.87**	**0.031**	**0.10**	**2.74**	**0.003**	**0.01**	**2.13**	**0.017**
GFC				**0.46**	**11.70**	**0.000**			
SECRISK*GFC				**-0.01**	**-0.46**	**0.322**			
SECINC*GFC				**-0.10**	**-2.66**	**0.004**			
FAS							**0.46**	**11.67**	**0.000**
SECRISK*FAS							**-0.02**	**-0.67**	**0.252**
SECINC*FAS							**-0.03**	**-0.71**	**0.240**
LNTA	0.61	24.74	0.000	0.61	24.68	0.000	0.61	24.75	0.000
BIGN	0.44	12.16	0.000	0.44	12.13	0.000	0.44	12.17	0.000
STDRET	-0.01	-0.57	0.283	-0.01	-0.60	0.276	-0.01	-0.60	0.275
SAVING	0.02	0.33	0.369	0.02	0.32	0.376	0.02	0.32	0.375
LOSS	0.02	0.56	0.287	0.03	0.62	0.268	0.02	0.50	0.309
CAPRATIO	0.02	5.10	0.000	0.02	5.17	0.000	0.02	5.10	0.000
TRANSACCT	0.04	0.33	0.371	0.04	0.35	0.362	0.04	0.34	0.367
SECURITIES	-0.23	-1.48	0.069	-0.22	-1.43	0.077	-0.24	-1.50	0.068
COMMLOAN	-0.01	-0.03	0.488	0.00	-0.01	0.496	-0.01	-0.02	0.493
MTGLOAN	-0.53	-3.46	0.000	-0.52	-3.42	0.000	-0.52	-3.44	0.000
INTANG	1.35	1.65	0.050	1.37	1.67	0.048	1.34	1.63	0.052
CHGOFF	0.04	1.00	0.158	0.04	0.92	0.179	0.04	1.00	0.160
NONPERFORM	2.80	3.58	0.000	2.87	3.57	0.000	2.84	3.55	0.000
INEFFICIENCY	0.43	4.16	0.000	0.43	4.13	0.000	0.43	4.18	0.000
SENSITIVE	0.01	0.27	0.393	0.02	0.33	0.372	0.02	0.28	0.388
INTDERIV	0.02	3.57	0.000	0.02	3.56	0.000	0.02	3.55	0.000
EXEMPT	-0.07	-1.60	0.055	-0.07	-1.60	0.055	-0.07	-1.59	0.056
SECURITIZER	0.03	0.95	0.171	0.03	0.84	0.200	0.03	0.94	0.174
Chow Test (GFC)				4.72; p < .0001			2.12; p < .0001		
N	3,051			3,051			3,051		
Adj. R^2	0.891			0.891			0.891		
F-Stat.	262.42; p < .0001			244.65; p < .0001			236.37; p <. 0001		

Note: Standard errors are clustered on BHCs and models control for year fixed effects. All p values are one-tailed because of directional predictions. Chow Tests indicate any difference in model structure before and after the onset of the GFC with the break point as 2007. Variables are defined in Table 1.

Panel B: Before the GFC, During the GFC and After FAS 166/167 Comparison

Model 1 Results (Dependent Variable: LNAF)

	Before the GFC (2003–2006)			During the GFC (2007–2009)			After FAS166 and FAS167 (2010–2011)		
	Coef	**T-Stat**	**p-value**	**Coef**	**T-Stat**	**p-value**	**Coef**	**T-Stat**	**p-value**
INTERCEPT	-1.83	-2.89	0.002	-0.47	-0.73	0.232	-1.32	-2.05	0.021
SECRISK	**0.03**	**2.57**	**0.005**	**0.04**	**1.47**	**0.072**	**0.04**	**1.16**	**0.124**
SECINC	**0.08**	**2.15**	**0.016**	**0.00**	**2.65**	**0.004**	**-0.03**	**-0.79**	**0.215**
LNTA	0.60	22.34	0.000	0.59	19.84	0.000	0.63	20.19	0.000
BIGN	0.46	11.49	0.000	0.40	7.97	0.000	0.39	7.29	0.000
STDRET	-0.19	-3.00	0.001	-0.01	-0.19	0.424	0.00	0.12	0.451
SAVING	-0.01	-0.13	0.448	0.03	0.34	0.365	0.04	0.62	0.267
LOSS	-0.11	-0.62	0.269	0.09	1.75	0.040	0.05	0.82	0.205
CAPRATIO	0.01	2.14	0.016	0.01	4.24	0.000	0.03	5.81	0.000
TRANSACCT	0.31	2.42	0.008	-0.12	-0.75	0.228	-0.23	-1.20	0.115
SECURITIES	-0.37	-2.37	0.009	0.24	0.97	0.166	-0.36	-1.45	0.074
COMMLOAN	-0.01	-0.03	0.489	0.01	0.02	0.493	-0.50	-1.24	0.108
MTGLOAN	-0.39	-2.60	0.005	-0.64	-2.99	0.002	-0.95	-4.58	0.000
INTANG	2.08	2.20	0.014	0.47	0.43	0.333	1.02	0.78	0.217
CHGOFF	0.15	1.79	0.037	0.05	1.07	0.142	-0.07	-1.21	0.114
NONPERFORM	6.45	2.33	0.010	2.25	1.98	0.025	2.37	2.90	0.002
INEFFICIENCY	1.22	5.16	0.000	0.14	1.67	0.048	0.48	3.74	0.000
SENSITIVE	-0.01	-0.25	0.403	0.10	0.84	0.202	0.16	1.42	0.078
INTDERIV	0.02	2.34	0.010	0.02	2.75	0.003	0.02	3.23	0.001
EXEMPT	-0.03	-0.56	0.288	-0.02	-0.33	0.372	-0.08	-1.47	0.071
SECURITIZER	0.00	-0.01	0.496	0.05	1.11	0.134	0.06	1.17	0.121
N	1560			864			627		
Adj. R^2	0.882			0.895			0.916		
F-Stat.	222.40; p < .0001			196.66; p < .0001			354.09; p < .0001		

Note: Standard errors are clustered on BHCs and models control for year fixed effects. All p values are one-tailed because of directional predictions. Chow Tests indicate any difference in model structure before and after the onset of the GFC with the break point as 2007.

Variables are defined in Table 1.

TABLE 7
Audit Fees and Asset Securitization Risks: Using the Individual Asset Securitization Risk Variables, ABS, RETINT, NPL_SEC and CHGOFF_SEC as Test Variables

Panel A: Pooled BHC Data 2003-2011

Model 1 Using individual Asset Securitization Risk Variables (Dependent Variable: LNAF)
Pooled 2003–2011

	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value
Panel A: ABS									
ABS	0.16	2.8	0.003	0.18	2.94	0.002	0.17	2.90	0.002
GFC				0.46	11.70	0.000			
ABS*GFC				-0.26	-1.28	0.100			
FAS							0.46	11.78	0.000
ABS*FAS							-0.12	-0.54	0.295
Adj. R2	0.891			0.891			0.891		
F-Stat.	234.33; p < .0001			225.47; p < .0001			225.86; p < .0001		
Panel B: RETINT									
RETINT	3.81	2.92	0.002	4.48	2.12	0.017	3.82	2.72	0.003
GFC				0.46	11.52	0.000			
RETINT*GFC				-1.29	-0.67	0.253			
FAS							0.45	11.53	0.000
RETINT*FAS							-0.08	-0.05	0.480
Adj. R2	0.891			0.891			0.891		
F-Stat.	340.77; p < .0001			371.86; p < .0001			482.02; p < .0001		
Panel C: NPL_SEC									
NPL_SEC	3.86	3.68	0.000	5.14	4.05	0.000	4.21	4.14	0.000
GFC				0.46	11.79	0.000			
NPL_SEC*GFC				-3.82	-1.80	0.036			
FAS							0.46	11.82	0.000
NPL_SEC*FAS							-2.06	-1.36	0.087
Adj. R2	0.891			0.891			0.891		
F-Stat.	261.43; p < .0001			236.35; p < .0001			253.88; p < .0001		
Panel D: CHGOFF_SEC									
CHGOFF_SEC	3.66	1.26	0.104	5.25	2.01	0.023	4.49	1.76	0.039
GFC				0.45	11.43	0.000			
CHGOFF_SEC*GFC				-9.43	-1.00	0.159			
FAS							0.45	11.46	0.000
CHGOFF_SEC*FAS							-17.11	-1.42	0.078
Adj. R2	0.891			0.891			0.891		
F-Stat.	246.13; p < .0001			243.90; p < .0001			252.99; p < .0001		

Panel B: Before the GFC, During the GFC and After FAS 166/167 Comparison

	Model 1 Using individual Asset Securitization Risk Variables (Dependent Variable: LNAF)								
	Before the GFC (2003–2006)			During the GFC (2007–2009)			During the GFC (2010–2011)		
	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value
Panel A: ABS									
ABS	0.14	2.55	0.006	0.05	0.19	0.426	0.18	0.67	0.253
Adj. R2	0.881			0.895			0.916		
F-Stat.	213.95; p < .0001			164.17; p < .0001			302.55; p < .0001		
Panel B: RETINT									
RETINT	4.96	2.25	0.013	3.64	3.39	0.000	3.60	2.37	0.009
Adj. R2	0.881			0.895			0.916		
F-Stat.	250.10; p < .0001			369.59; p < .0001			435.49; p < .0001		
Panel C: NPL_SEC									
NPL_SEC	4.31	3.30	0.001	2.46	0.91	0.182	3.71	1.61	0.054
Adj. R2	0.881			0.895			0.917		
F-Stat.	219.79; p < .0001			171.56; p < .0001			418.31; p < .0001		
Panel D: CHGOFF_SEC									
CHGOFF_SEC	6.08	2.35	0.010	6.44	0.76	0.223	-6.80	-0.46	0.324
Adj. R2	0.881			0.895			0.916		
F-Stat.	299.01; p < .0001			167.40; p < .0001			295.73; p < .0001		
N	1,560			864			627		

Note: Standard errors are clustered on BHCs and models control for year fixed effects. All p values are one-tailed because of directional predictions.
Variables are defined in Table 1.

Table 8
Heckman Two-Stage Approach: Controlling for Self-Selection of Securitization Activities
Panel A: Audit Fees and Asset Securitization Risks

	1st Stage Selection (Dependent Variable: SECURITIZER)			2nd Stage Estimates (Both Securitizers and Non-Securitizers) (Dependent Variable: LNAF)								
	Coef	Chi-Sq	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value
INTERCEPT	-5.70	131.73	0.000	-1.59	-3.51	0.000	-1.59	-3.51	0.000	-1.61	-3.55	0.000
SECRISK				**0.04**	**3.02**	**0.001**	**0.03**	**2.15**	**0.016**	**0.04**	**3.25**	**0.001**
SECINC				**0.01**	**1.87**	**0.031**	**0.10**	**2.74**	**0.003**	**0.01**	**2.13**	**0.017**
GFC							**0.47**	**11.45**	**0.000**			
SECRISK*GFC							**-0.01**	**-0.49**	**0.312**			
SECINC*GFC							**-0.10**	**-2.65**	**0.004**			
FAS										**0.46**	**11.43**	**0.000**
SECRISK*FAS										**-0.02**	**-0.68**	**0.247**
SECINC*FAS										**-0.03**	**-0.71**	**0.240**
IMR				**0.04**	**0.16**	**0.435**	**0.04**	**0.17**	**0.434**	**0.04**	**0.18**	**0.429**
LNTA	0.27	130.17	0.000	0.62	26.67	0.000	0.62	26.61	0.000	0.62	26.79	0.000
BIGN	0.47	61.76	0.000	0.45	6.03	0.000	0.45	6.00	0.000	0.45	6.05	0.000
SECURITIES	-1.15	27.53	0.000	-0.26	-1.14	0.126	-0.25	-1.11	0.134	-0.26	-1.16	0.123
MTGLOAN	1.48	64.45	0.000	-0.50	-1.96	0.025	-0.50	-1.94	0.027	-0.50	-1.95	0.026
SENSITIVE	-0.32	5.25	0.011									
STDRET				-0.01	-0.58	0.282	-0.01	-0.60	0.275	-0.01	-0.60	0.274
SAVING				0.02	0.33	0.372	0.02	0.31	0.380	0.02	0.31	0.378
LOSS				0.02	0.56	0.287	0.03	0.62	0.268	0.02	0.50	0.309
CAPRATIO				0.02	5.18	0.000	0.02	5.24	0.000	0.02	5.18	0.000
TRANSACCT				0.04	0.34	0.366	0.04	0.38	0.353	0.04	0.35	0.362
COMMLOAN				-0.01	-0.03	0.486	0.00	-0.01	0.495	-0.01	-0.02	0.491
INTANG				1.34	1.65	0.050	1.36	1.66	0.049	1.33	1.63	0.052
CHGOFF				0.04	1.00	0.158	0.04	0.92	0.179	0.04	0.99	0.160
NONPERFORM				2.80	3.60	0.000	2.86	3.58	0.000	2.84	3.57	0.000
INEFFICIENCY				0.43	4.19	0.000	0.43	4.16	0.000	0.43	4.21	0.000
INTDERIV				0.02	3.79	0.000	0.02	3.74	0.000	0.02	3.75	0.000
EXEMPT				-0.07	-1.45	0.074	-0.07	-1.45	0.074	-0.07	-1.44	0.075
SECURITIZER				-0.03	-0.07	0.471	-0.03	-0.08	0.467	-0.03	-0.09	0.465
Adj. R^2*		0.199			0.891			0.891			0.891	
N		3,051			3,051			3,051			3,051	

*Max-rescaled R-square is reported for the 1st stage selection model. The second stage tests are clustered on BHCs with year effect controlled.
All the results reported in this paper are one-tailed because of directional predictions.

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TABLE 8 (continued)

Panel B: Audit Fees and Asset Securitization Risks for the Before the GFC. During the GFC and After FAS166/167 Comparison

	Before the GFC (2003–2006)						During the GFC (2007–2009)						After FAS166/167 (2010-2011)					
	1st Stage Selection (Dependent Variable: SECURITIZER)			2nd Stage Estimates (Both Securitizers and Non-Securitizers) (Dependent Variable: LNAF)			1st Stage Selection (Dependent Variable: SECURITIZER)			2nd Stage Estimates (Both Securitizers and Non-Securitizers) (Dependent Variable: LNAF)			1st Stage Selection (Dependent Variable: SECURITIZER)			2nd Stage Estimates (Both Securitizers and Non-Securitizers) (Dependent Variable: LNAF)		
	Coef	Chi-Sq	P-value	Coef	T-Stat	P-value	Coef	Chi-Sq	P-value	Coef	T-Stat	P-value	Coef	Chi-Sq	P-value	Coef	T-Stat	P-value
INTERCEPT	-6.55	86.03	0.000	-1.74	-3.32	0.001	-5.30	26.97	0.000	-0.78	-1.37	0.086	-4.95	18.77	0.000	-1.65	-2.64	0.004
SECRISK				**0.03**	**2.59**	**0.005**				**0.04**	**1.32**	**0.094**				**0.04**	**1.02**	**0.155**
SECINC				**0.08**	**2.19**	**0.015**				**0.00**	**2.56**	**0.006**				**-0.03**	**-0.76**	**0.223**
IMR				**-0.06**	**-0.18**	**0.427**				**0.22**	**0.80**	**0.211**				**0.16**	**0.57**	**0.285**
LNTA	0.31	84.65	0.000	0.59	20.38	0.000	0.25	27.43	0.000	0.62	21.78	0.000	0.22	16.90	0.000	0.65	19.16	0.000
BIGN	0.46	31.33	0.000	0.44	4.46	0.000	0.47	15.00	0.000	0.46	4.90	0.000	0.48	11.31	0.000	0.44	4.57	0.000
SECURITIES	-1.10	14.54	0.000	-0.35	-1.55	0.061	-1.77	13.87	0.000	0.04	0.10	0.460	-0.75	2.02	0.077	-0.47	-1.75	0.041
MTGLOAN	1.27	25.14	0.000	-0.43	-1.50	0.067	1.61	18.86	0.000	-0.49	-1.37	0.086	2.02	23.06	0.000	-0.79	-2.09	0.019
SENSITIVE	-0.37	3.48	0.031				-0.33	1.27	0.130				-0.29	0.73	0.196			
STDRET				-0.18	-2.44	0.007				-0.02	-0.30	0.382				0.00	0.10	0.460
SAVING				-0.01	-0.13	0.447				0.03	0.34	0.368				0.03	0.48	0.316
LOSS				-0.11	-0.61	0.271				0.09	1.78	0.038				0.05	0.81	0.208
CAPRATIO				0.01	2.13	0.017				0.01	4.36	0.000				0.03	5.98	0.000
TRANSACCT				0.31	2.28	0.012				-0.09	-0.58	0.282				-0.20	-1.03	0.152
COMMLOAN				-0.01	-0.02	0.492				0.00	0.00	0.498				-0.48	-1.19	0.118
INTANG				2.10	2.23	0.013				0.36	0.35	0.365				0.82	0.63	0.263
CHGOFF				0.15	1.79	0.037				0.05	1.05	0.147				-0.07	-1.19	0.118
NONPERFORM				6.48	2.33	0.010				2.28	1.99	0.024				2.32	2.83	0.002
INEFFICIENCY				1.21	5.41	0.000				0.13	1.62	0.053				0.48	3.73	0.000
INTDERIV				0.02	2.47	0.007				0.02	2.51	0.006				0.02	3.19	0.001
EXEMPT				-0.02	-0.46	0.321				-0.03	-0.44	0.330				-0.08	-1.48	0.070
SECURITIZER				0.10	0.19	0.426				-0.31	-0.70	0.241				-0.22	-0.46	0.323
Adj. R^{2}*		0.225			0.882			0.181			0.895			0.176			0.916	
N		1,560			1,560			864			864			627			627	

*Max-rescaled R-square is reported for the 1st stage selection model.

The second stage tests have standard errors clustered on BHCs and control for year fixed effects. All p values are one-tailed because of directional predictions.

Variables are defined in Table 1.

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Asset Securitization Risk Measures (N = 2,424)¶
Panel A: Distributional Characteristics of the Asset Securitization Risk Variables¶
Variables ... [2]

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NPL_SEC_AMT = total nonperforming securitized loans.

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TABLE 2

Asset Securitization Risk Measures (N = 2,424)

Panel A: Distributional Characteristics of the Asset Securitization Risk Variables

Variables	Mean	Median	Min	Q1	Q3	Max	Std dev
ABS	0.0219	0	0	0	0	7.6782	0.2006
RETINT	0.0006	0	0	0	0	0.0957	0.0051
NPL_SEC	0.0010	0	0	0	0	0.2575	0.0092
CHGOFF_SEC	0.0002	0	-0.0001	0	0	0.0740	0.0025
SECINC	0.0094	0.000	-75.3404	0	0.0187	7.7991	1.5571
SECRISK	2.63E-16	-0.1739	-0.1767	-0.1739	0	15.1866	0.8144
SECURITIZER	0.6634	1	0	0	1	1	0.4727

Panel B: Pearson Correlations of the Asset Securitization Risk Variables

Variables	ABS	RETINT	NPL_SEC	CHGOFF_SEC	SECINC	SECRISK	SECURITIZER
ABS	1.000						
RETINT	0.264 (<.0001)	1.000					
NPL_SEC	0.731 (<.0001)	0.355 (<.0001)	1.000				
CHGOFF_SEC	0.251 (<.0001)	0.515 (<.0001)	0.311 (<.0001)	1.000			
SECINC	0.017 (0.402)	-0.010 (0.634)	0.027 (0.183)	-0.070 (0.001)	1.000		
SECRISK	0.779 (<.0001)	0.684 (<.0001)	0.832 (<.0001)	0.660 (<.0001)	-0.008 (0.689)	1.000	
SECURITIZER	0.078 (0.000)	0.086 (<.0001)	0.079 (<.0001)	0.056 (0.006)	0.004 (0.832)	0.000 (1.000)	1.000

Note: Two-tailed p-values are presented in parentheses.

Panel C: Weight (Standardized Scoring Coefficients) on the Four Asset Securitization Risk Measures in the Component Factor (SECINC excluded due to lack of correlation with other variables)

Weight	ABS	RETINT	NPL_SEC	CHGOFF_SEC	SECINC	Variance Explained	Eigenvalue
SECRISK	0.353	0.310	0.377	0.298		55.4%	2.216
SECINC					N/A		

Variables are defined in Table 1.

Section Break (Next Page)

TABLE 3
Descriptive Statistics for the Sample

	Pooled		Securitizer	Non-Securitizer	Difference in Means	Mean						
	Mean	Std dev	Mean	Mean	T-Stat	2003	2004	2005	2006	2007	2008	2009
N	2,424		1,608	816		426	411	393	330	302	286	276
Dependent Variable												
AUDIT_FEE ($,000)	1,284.555	5,348.928	1,645.240	573.795	5.68***	682.882	1,046.842	1,204.970	1,445.312	1,510.448	1,658.200	1,854.968
LNAF	12.722	1.293	13.000	12.174	16.92***	12.117	12.564	12.700	12.947	12.988	13.036	13.041
Test Variables												
ABS_AMT ($,000)	4,924,831	43,524,437	7,424,000			2,336,614	2,942,561	3,772,070	5,828,468	5,548,.330	9,552,501	6,954,975
RETINT_AMT ($,000)	138,946	2,205,028	209,456			73,082	66,690	69,938	106,776	113,045	126,605	526,062
NPL_SEC_AMT ($,000)	445,951	6,605,999	672,255			112.351	128,796	182,811	292,839	208,642	1,206,373	1,462,591
CHGOFF_SEC_AMT ($,000)	74,148	1,005,435	111,776			36,423	38,340	34,242	38,083	52,626	110,477	271,547
SECINC_AMT ($,000)	89,577	734,060	135,034			62,694	81,155	75,551	126,634	102,940	82,675	111,804
ABS	0.021925	0.200577	0.033051			0.039393	0.021424	0.019276	0.024006	0.012908	0.014548	0.014051
RETINT	0.000612	0.005092	0.000922			0.000903	0.000796	0.000351	0.000458	0.000410	0.000503	0.000777
NPL_SEC	0.001019	0.009157	0.001537			0.001235	0.000824	0.000790	0.001225	0.000431	0.001158	0.001557
CHGOFF_SEC	0.000195	0.002474	0.000293			0.000297	0.000307	0.000101	0.000068	0.000087	0.000162	0.000306
SECINC	0.009396	1.557111	0.014165			0.034236	0.042799	0.043421	0.062401	0.050651	-0.241595	0.024437
SECRISK	5.36E-16	0.814388	7.82E-16			0.055976	0.014870	-0.029879	-0.010807	-0.053699	-0.016575	0.022859
Control Variables												
TOTAL ASSETS ($,000)	26,929,327	161,161.705	37,846,049	5,416,964	6.44***	16,481,346	19,236,247	21,763,429	29,285,707	34,411,522	37,927,819	39,465,912
LNTA	21.590	1.618	21.948	20.883	18.27***	21.255	21.330	21.450	21.786	21.826	21.893	21.883
BIGN	0.491	0.500	0.592	0.293	14.88***	0.573	0.533	0.486	0.488	0.454	0.434	0.417
STDRET	0.322	0.386	0.252	0.459	-12.37***	0.337	0.361	0.371	0.280	0.264	0.310	0.297
SAVING	0.054	0.225	0.063	0.036	3.07***	0.070	0.063	0.064	0.045	0.040	0.038	0.040
LOSS	0.108	0.311	0.111	0.104	0.49	0.009	0.024	0.018	0.012	0.060	0.315	0.471
CAPRATIO	13.592	5.063	13.526	13.720	-1.08	14.106	13.871	13.577	13.388	12.675	13.311	13.939
TRANSACCT	0.570	0.152	0.577	0.557	2.87***	0.595	0.599	0.579	0.552	0.548	0.517	0.576
SECURITIES	0.205	0.120	0.203	0.208	-0.94	0.245	0.228	0.207	0.190	0.173	0.173	0.191
COMMLOAN	0.167	0.102	0.170	0.162	1.77*	0.175	0.167	0.160	0.166	0.169	0.168	0.164
MTGLOAN	0.296	0.150	0.308	0.272	5.83***	0.311	0.306	0.303	0.292	0.276	0.281	0.292
INTANG	0.018	0.023	0.021	0.011	12.32***	0.013	0.016	0.018	0.022	0.024	0.019	0.016
CHGOFF	0.336	0.359	0.361	0.285	4.99***	0.272	0.237	0.211	0.219	0.292	0.522	0.752
NONPERFORM	0.014	0.023	0.014	0.014	0.84	0.009	0.007	0.006	0.007	0.012	0.029	0.042

INEFFICIENCY	0.772	0.154	0.765	0.785	-2.90***	0.726	0.727	0.738	0.766	0.795	0.850	0.855
SENSITIVE	0.089	0.225	0.092	0.084	-0.88	0.087	0.137	0.117	0.079	0.072	0.055	0.049
INTDERIV	0.277	2.355	0.407	0.020	5.39***	0.258	0.227	0.237	0.301	0.317	0.296	0.347
SECURITIZER	0.663	0.473	1			0.669	0.652	0.641	0.667	0.666	0.675	0.685

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 unequal variances. It provides a t statistic that symptotically approaches a t distribution, allowing for an approximate t test to be calculated.

***, **, and * denote statistical significance at 1%, 5% and 10% based on two-tailed tests.

Variables are defined in Table 1.

End of Section

TABLE 4
Pearson Correlations (N = 2,424 Sample Period: 2003–2009)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. LNAF	1.000																
2. LNTA	0.913[c]	1.000															
3. BIGN	0.584[c]	0.537[c]	1.000														
4. STDRET	-0.606[c]	-0.638[c]	-0.446[c]	1.000													
5. SAVING	-0.086[c]	-0.085[c]	-0.039[b]	0.111[c]	1.000												
6. LOSS	0.089[c]	0.030	-0.080[c]	-0.021	-0.012	1.000											
7. CAPRATIO	0.031	-0.018	0.052[c]	0.020	0.027	-0.079[c]	1.000										
8. TRANSACCT	0.119[c]	0.124[c]	0.209[c]	-0.173[c]	-0.022	0.027[c]	-0.079[c]	1.000									
9. SECURITIES	0.004	0.028	0.189[c]	-0.000	-0.026	-0.144[c]	0.291[c]	0.116[c]	1.000								
10. COMMLOAN	0.181[c]	0.163[c]	0.197[c]	-0.171[c]	-0.115[c]	-0.060[c]	-0.036[a]	0.280[c]	-0.034[a]	1.000							
11.MTGLOAN	-0.049[b]	0.015	0.003	0.095[c]	0.185[c]	-0.060[c]	0.015	-0.047[b]	0.117[c]	-0.430[c]	1.000						
12. INTANG	0.418[c]	0.399[c]	0.240[c]	-0.311[c]	0.052[b]	-0.072[c]	0.353[c]	0.177[c]	-0.075[c]	0.035[a]	0.012	1.000					
13. CHGOFF	0.241[c]	0.198[c]	0.015	-0.115[c]	-0.042[b]	0.505[c]	0.127[c]	-0.091[c]	-0.117[c]	0.059[c]	-0.064[c]	0.102[c]	1.000				
14. NONPERFORM	0.140[c]	0.082[c]	-0.051[b]	0.002	-0.027	0.569[c]	-0.077[c]	-0.223[c]	-0.107[c]	-0.052[c]	-0.063[c]	-0.057[c]	0.502[c]	1.000			
15. INEFFICIENCY	-0.056[c]	-0.134[c]	-0.178[c]	0.171[c]	0.019	0.574[c]	-0.111[c]	-0.224[c]	-0.071[c]	-0.100[c]	0.017	-0.121[c]	0.285[c]	0.361[c]	1.000		
16. SENSITIVE	0.196[c]	0.201[c]	0.171[c]	-0.145[c]	-0.042[b]	-0.066[c]	0.035[a]	0.273[c]	-0.114[c]	0.202[c]	-0.177[c]	0.086[c]	-0.030	-0.089[c]	-0.136[c]	1.000	
17. INTDERIV	0.367[c]	0.391[c]	0.112[c]	-0.086[c]	-0.016	-0.014	-0.016	-0.022	-0.075[c]	0.043[b]	0.061[c]	0.100[c]	0.087[c]	0.048[b]	-0.022	0.039[a]	1.000
18. SECURITIZER	0.302[c]	0.311[c]	0.283[c]	-0.254[c]	0.057[c]	0.010	-0.018	0.060[c]	-0.020	0.039[a]	0.115[c]	0.209[c]	0.100[c]	0.020	-0.061[c]	0.016	0.078[c]
19. ABS	0.166[c]	0.169[c]	0.057[c]	-0.056[c]	0.058[c]	0.001	0.055[c]	-0.005	-0.038[a]	-0.062[c]	0.147[c]	0.153[c]	0.075[c]	0.037[a]	-0.024	0.048[b]	0.107[c]
20. RETINT	0.228[c]	0.230[c]	0.120[c]	-0.091[c]	-0.011	0.039[a]	0.077[c]	-0.066[c]	0.009	-0.035[a]	-0.021	0.117[c]	0.117[c]	0.083[c]	-0.059[c]	0.036[a]	0.142[c]
21. NPL_SEC	0.257[c]	0.264[c]	0.093[c]	-0.078[c]	0.107[c]	0.022	0.037[a]	-0.020	-0.055[c]	-0.063[c]	0.173[c]	0.162[c]	0.092[c]	0.091[c]	-0.033	0.058[c]	0.228[c]
22. CHGOFF_SEC	0.181[c]	0.183[c]	0.080[c]	-0.060[c]	-0.018	0.006	0.104[c]	-0.058[c]	-0.045[b]	-0.026	-0.046[b]	0.126[c]	0.143[c]	0.036[a]	-0.057[c]	0.017	0.148[c]
23. SECINC	-0.009	-0.017	-0.004	0.002	0.007	-0.079[c]	-0.010	0.002	0.009	0.001	0.022	-0.031	-0.020	-0.003	0.005	0.000	0.033
24. SECRISK	0.250[c]	0.254[c]	0.088[c]	-0.070[c]	0.046[b]	0.021	0.097[c]	-0.053[c]	-0.043[b]	-0.068[c]	0.086[c]	0.168[c]	0.131[c]	0.082[c]	-0.050[b]	0.053[c]	0.205[c]

Note: Two-tailed p-values: [a] $p < 0.10$, [b] $p < 0.05$; [c] $p < 0.01$. The Pearson correlations between the individual asset securitization risk variables are presented in Table 2.
Variables are defined in Table 1.

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TABLE 5
Basic Model Fitting and Validation of Audit Fee Model

		Pooled Sample: 2003 to 2009 (Dependent Variable: LNAF)					
		(1) Fields et al. (2004) Model			(2) Extended Model		
Variable	**Expected Sign**	**Coef**	**T-Stat**	**p-value**	**Coef**	**T-Stat**	**p-value**
INTERCEPT	+	-1.90	-3.73	0.000	-1.40	-2.48	0.007
LNTA	+	0.63	26.94	0.000	0.60	23.30	0.000
BIGN	+	0.43	11.63	0.000	0.44	11.93	0.000
STDRET	+	-0.07	-1.17	0.122	-0.10	-1.75	0.041
SAVING	+	0.01	0.13	0.448	0.01	0.15	0.441
LOSS	+	0.00	0.03	0.489	0.01	0.25	0.403
CAPRATIO	+	0.01	4.40	0.000	0.01	4.26	0.000
TRANSACCT	+	0.08	0.64	0.261	0.08	0.72	0.236
SECURITIES	+	-0.25	-1.53	0.063	-0.19	-1.15	0.124
COMMLOAN	+	0.09	0.29	0.387	0.08	0.24	0.406
MTGLOAN	+	-0.38	-2.40	0.008	-0.40	-2.42	0.008
INTANG	+	1.61	1.86	0.032	1.80	2.07	0.019
CHGOFF	+	0.10	1.97	0.025	0.10	1.94	0.026
NONPERFORM	+	2.98	2.39	0.009	2.92	2.37	0.009
INEFFICIENCY	+	0.44	3.68	0.000	0.42	3.54	0.000
SENSITIVE	-	-0.01	-0.16	0.437	0.00	0.07	0.462
INTERDIV		-	-	-	0.02	2.69	0.004
		Year Indicators Clustered on BHCs			Year Indicators Clustered on BHCs		
N		2,424			2,424		
Adjusted R^2		0.883			0.884		
F-Value		227.46; p < .0001			238.49; p < .0001		

Note: Standard errors are clustered on BHCs and models control for year fixed effects. All p values are one-tailed because of directional predictions.
Variables are defined in Table 1.

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TABLE 6
Audit Fees and Asset Securitization Risks

Model 1 Results (Dependent Variable: LNAF)

	Pooled 2003–2009						Before the GFC (2003–2006)			During the GFC (2007–2009)			Group Diff.	
	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	T-Stat	p-value
INTERCEPT	-1.25	-2.12	0.017	-1.24	-2.15	0.016	-1.84	-2.92	0.002	-0.50	-0.79	0.214	-1.39	0.083
SECRISK	0.05	3.65	0.000	0.04	2.48	0.007	0.03	2.55	0.006	0.04	1.52	0.065	-0.29	0.385
SECINC	0.01	1.97	0.025	0.10	2.79	0.003	0.08	2.14	0.016	0.01	2.69	0.004	1.50	0.067
GFC				0.40	8.82	0.000								
SECRISK* GFC				-0.01	-0.38	0.352								
SECINC* GFC				-0.10	-2.72	0.003								
LNTA	0.60	21.74	0.000	0.60	22.12	0.000	0.60	22.47	0.000	0.60	20.25	0.000	0.00	0.498
BIGN	0.44	11.76	0.000	0.44	11.69	0.000	0.46	11.48	0.000	0.40	7.98	0.000	0.90	0.185
STDRET	-0.11	-1.86	0.032	-0.11	-1.86	0.032	-0.20	-3.38	0.000	-0.03	-0.39	0.347	-1.83	0.034
SAVING	0.00	-0.01	0.494	0.00	-0.02	0.491	-0.01	-0.18	0.430	0.03	0.32	0.376	-0.38	0.352
LOSS	0.02	0.31	0.377	0.02	0.41	0.340	-0.11	-0.63	0.266	0.09	1.74	0.041	-0.83	0.203
CAPRATIO	0.01	4.25	0.000	0.01	4.26	0.000	0.01	2.14	0.017	0.01	4.23	0.000	-0.91	0.182
TRANSACCT	0.10	0.85	0.197	0.10	0.87	0.193	0.31	2.44	0.008	-0.12	-0.73	0.232	2.05	0.020
SECURITIES	-0.16	-0.98	0.163	-0.15	-0.91	0.182	-0.37	-2.35	0.010	0.25	0.98	0.164	-2.19	0.014
COMMLOAN	0.10	0.31	0.379	0.11	0.33	0.372	-0.01	-0.02	0.491	0.01	0.02	0.492	-0.03	0.488
MTGLOAN	-0.42	-2.56	0.005	-0.42	-2.58	0.005	-0.39	-2.59	0.005	-0.64	-2.99	0.001	0.97	0.167
INTANG	1.66	1.95	0.026	1.69	2.00	0.023	2.10	2.22	0.014	0.45	0.42	0.338	1.09	0.138
CHGOFF	0.09	1.71	0.044	0.09	1.62	0.053	0.15	1.82	0.035	0.05	1.07	0.142	0.84	0.200
NONPERFORM	2.77	2.35	0.010	2.81	2.36	0.009	6.43	2.31	0.011	2.25	1.98	0.024	1.09	0.137
INEFFICIENCY	0.43	3.59	0.000	0.43	3.53	0.000	1.21	5.16	0.000	0.14	1.67	0.048	3.35	0.000
SENSITIVE	0.00	0.03	0.488	0.00	0.08	0.469	-0.01	-0.26	0.398	0.10	0.83	0.205	-0.99	0.160
INTDERIV	0.02	2.75	0.003	0.02	2.71	0.004	0.02	2.34	0.010	0.02	2.76	0.003	-0.34	0.368
SECURITIZER	0.03	0.70	0.243	0.02	0.59	0.277	0.00	0.02	0.493	0.05	1.13	0.129	-0.77	0.222
Chow Test (GFC)	F = 4.01; p < .0001			F = 3.99; p <. 0001										
N	2,424			2,424			1,560			864				
Adj. R^2	0.885			0.885			0.882			0.895				
F-Stat.	251.07; p < .0001			288.66; p < .0001			233.54; p <. 0001			206.94; p < .0001				

Note: Standard errors are clustered on BHCs and models control for year fixed effects. All p values are one-tailed because of directional predictions. Chow Tests indicate any difference in model structure before and after the onset of the GFC with the break point as 2007.

Variables are defined in Table 1.

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TABLE 7
Audit Fees and Asset Securitization Risks: Using the Individual Asset Securitization Risk Variables, ABS, RETINT, NPL_SEC and CHGOFF_SEC as Test Variables

Model 1 Using individual Asset Securitization Risk Variables (Dependent Variable: LNAF)

	Pooled 2003–2009						Before the GFC (2003–2006)			During the GFC (2007–2009)			Group Diff.	
	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	T-Stat	p-value
Panel A: ABS														
ABS	0.16	2.62	0.005	0.18	2.64	0.004	0.14	2.50	0.006	0.04	0.17	0.433	0.50	0.308
GFC				0.39	8.81	<0.001								
ABS*GFC				-0.33	-1.61	0.054								
Adj. R^2	0.885			0.885			0.881			0.895				
F-Stat.	228.92; p < .0001			229.65; p < .0001			224.38; p < .0001			172.33; p < .0001				
Panel B: RETINT														
RETINT	4.62	3.16	0.001	5.51	2.61	0.005	4.92	2.23	0.013	3.62	3.39	<0.001	0.42	0.337
GFC				0.39	8.58	<0.001								
RETINT*GFC				-2.02	-1.02	0.155								
Adj. R^2	0.885			0.885			0.881			0.895				
F-Stat.	339.58; p < .0001			449.88; p < .0001			261.87; p < .0001			386.55; p < .0001				
Panel C: NPL_SEC														
NPL_SEC	4.33	4.09	<0.001	5.21	3.86	<0.001	4.29	3.32	<0.001	2.41	0.90	0.185	0.71	0.239
GFC				0.39	8.90	<0.001								
NPL_SEC*GFC				-4.39	-1.77	0.039								
Adj. R^2	0.885			0.885			0.882			0.895				
F-Stat.	255.14; p < .0001			233.73; p < .0001			231.00; p < .0001			179.87; p < .0001				
Panel D: CHGOFF_SEC														
CHGOFF_SEC	5.95	2.23	0.013	6.57	2.44	0.007	6.03	2.34	0.010	6.38	0.75	0.225	-0.05	0.482
GFC				0.38	8.65	<0.001								
CHGOFF_SEC* GFC				-4.86	-0.65	0.257								
Adj. R^2	0.885			0.885			0.881			0.895				
F-Stat.	278.07; p < .0001			259.46; p < .0001			315.36; p < .001			175.57: p < .0001				
N	2,424			2,424			1,560			864				

Note: Standard errors are clustered on BHCs and models control for year fixed effects. All p values are one-tailed because of directional predictions.

Variables are defined in Table 1.

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Table 8
Heckman Two-Stage Approach: Controlling for Self-Selection of Securitization Activities
Panel A: Audit Fees and Asset Securitization Risks

	1st Stage Selection (Dependent Variable: SECURITIZER)			2nd Stage Estimates (Securitizer Subsample) (Dependent Variable: LNAF)						2nd Stage Estimates (Both Securitizers and Non-Securitizers) (Dependent Variable: LNAF)					
	Coef	Chi-Sq	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value
INTERCEPT	-7.21	161.54	< .0001	-2.01	-1.69	0.046	-2.10	-1.76	0.040	-2.22	-2.75	0.003	-2.24	-2.77	0.003
SECRISK				0.04	4.00	0.000	0.04	2.51	0.006	0.04	3.56	0.000	0.04	2.26	0.012
SECINC				0.01	1.83	0.039	0.10	2.77	0.003	0.01	2.14	0.017	0.10	2.87	0.002
GFC							0.40	7.01	0.000				0.43	9.28	0.000
SECRISK *GFC							-0.02	-0.80	0.212				-0.02	-0.80	0.212
SECINC* GFC							-0.10	-2.72	0.004				-0.10	-2.80	0.003
IMR				0.30	0.91	0.181	0.33	0.99	0.161	0.54	1.87	0.031	0.55	1.91	0.029
LNTA	0.34	161.98	< .0001	0.63	13.74	0.000	0.63	13.80	0.000	0.66	14.12	0.000	0.66	14.14	0.000
MTGLOAN	1.26	40.04	< .0001	-0.21	-1.00	0.159	-0.19	-0.90	0.184	-0.06	-0.29	0.389	-0.05	-0.24	0.407
CHGOFF	0.18	5.10	0.012	0.09	1.16	0.123	0.08	1.08	0.140	0.14	2.35	0.010	0.14	2.28	0.012
INTDERIV	0.70	3.11	0.039	0.02	2.65	0.004	0.02	2.60	0.005	0.02	2.06	0.020	0.02	2.09	0.018
LIQUIDITY	-0.16	11.47	0.000												
BIGN				0.43	10.06	0.000	0.43	10.01	0.000	0.45	12.25	0.000	0.45	12.19	0.000
STDRET				-0.15	-1.96	0.026	-0.15	-2.01	0.023	-0.18	-2.85	0.002	-0.18	-2.86	0.002
SAVING				-0.02	-0.36	0.360	-0.02	-0.38	0.352	-0.01	-0.12	0.453	-0.01	-0.14	0.444
LOSS				0.02	0.25	0.403	0.02	0.39	0.350	0.02	0.37	0.356	0.03	0.49	0.312
CAPRATIO				0.01	4.17	0.000	0.01	4.17	0.000	0.01	4.31	0.000	0.01	4.36	0.000
TRANSACCT				0.13	0.94	0.173	0.13	0.98	0.164	0.06	0.53	0.298	0.06	0.55	0.292
SECURITIES				-0.14	-0.66	0.256	-0.10	-0.51	0.305	-0.05	-0.24	0.406	-0.02	-0.14	0.443
COMMLOAN				-0.17	-0.67	0.251	-0.16	-0.62	0.269	0.16	0.51	0.305	0.16	0.54	0.295
INTANG				1.65	2.05	0.021	1.70	2.11	0.018	1.81	2.22	0.013	1.85	2.26	0.012
NONPERFORM				4.71	3.44	0.000	4.85	3.50	0.000	2.86	2.53	0.006	2.92	2.54	0.006
INEFFICIENCY				0.28	2.36	0.009	0.27	2.29	0.011	0.42	3.72	0.000	0.41	3.66	0.000
SENSITIVE				0.01	0.26	0.396	0.02	0.35	0.361	0.02	0.29	0.386	0.02	0.36	0.361
SECURITIZER										-0.85	-1.80	0.037	-0.87	-1.85	0.033
Adj. R^2*		0.190			0.895			0.895			0.887			0.887	
N		2,424			1,608			1,608			2,424			2,424	

*Max-rescaled R-square is reported for the 1st stage selection model.

The second stage tests are clustered on BHCs with year effect controlled.
All the results reported in this paper are one-tailed because of directional predictions.

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TABLE 8 (continued)
Panel B: Audit Fees and Asset Securitization Risks for the Before the GFC and During the GFC Subsamples

	Before the GFC (2003–2006)									During the GFC (2				
	1st Stage Selection (Dependent Variable: SECURITIZER)			2nd Stage Estimates (Securitizers Only Subsample) (Dependent Variable: LNAF)			2nd Stage Estimates (Both Securitizers and Non-Securitizers) (Dependent Variable: LNAF)			1st Stage Selection (Dependent Variable: SECURITIZER)			2nd Stage Esti (Securitizers Subsample (Dependent Va LNAF)	
	Coef	Chi-Sq	p-value	Coef	T-Stat	p-value	Coef	T-Stat	p-value	Coef	Chi-Sq	p-value	Coef	T-Stat
INTERCEPT	-8.08	131.17	0.000	-1.97	-1.78	0.038	-2.61	-3.96	0.000	-6.22	37.78	< .0001	-3.57	-2.09
SECRISK				0.03	2.67	0.004	0.03	2.10	0.018				0.02	0.73
SECINC				0.08	2.29	0.012	0.07	2.13	0.017				0.00	2.68
IMR				0.17	0.56	0.287	0.49	2.28	0.011				0.93	1.85
LNTA	0.39	131.32	0.000	0.61	14.36	0.000	0.65	18.53	0.000	0.29	37.39	< .0001	0.71	11.31
MTGLOAN	1.18	23.66	0.000	-0.24	-1.13	0.130	-0.09	-0.51	0.305	1.37	15.03	0.000	-0.05	-0.14
CHGOFF	0.52	10.55	0.001	0.14	0.95	0.172	0.28	2.63	0.004	0.15	1.94	0.082	0.10	1.37
INTDERIV	0.57	1.41	0.118	0.02	0.247	0.007	0.01	1.94	0.027	0.80	1.46	0.114	0.01	1.77
LIQUIDITY	-0.19	10.35	0.001							-0.10	1.20	0.136		
BIGN				0.45	9.22	0.000	0.47	11.73	0.000				0.41	7.71
STDRET				-0.22	-2.62	0.005	-0.29	-4.36	0.000				-0.08	-0.93
SAVING				-0.01	-0.09	0.464	-0.01	-0.23	0.408				-0.06	-0.64
LOSS				-0.23	-0.92	0.179	-0.10	-0.57	0.286				0.12	2.05
CAPRATIO				0.01	1.82	0.035	0.01	1.95	0.026				0.02	5.10
TRANSACCT				0.29	1.96	0.026	0.27	2.15	0.016				-0.10	-0.54
SECURITIES				-0.31	-1.37	0.085	-0.23	-1.36	0.087				0.25	0.89
COMMLOAN				-0.13	-0.44	0.330	0.06	0.20	0.420				-0.38	-1.28
INTANG				2.10	2.16	0.016	2.29	2.44	0.008				0.67	0.66
NONPERFORM				7.06	1.76	0.040	6.61	2.34	0.010				3.50	2.99
INEFFICIENCY				0.91	3.24	0.001	1.16	5.47	0.000				0.07	0.76
SENSITIVE				0.02	0.42	0.338	0.00	0.02	0.491				0.02	0.17
SECURITIZER							-0.80	-2.24	0.013					
Adj. R^{2*}*		0.221			0.888			0.883			0.153			0.910
N		1,560			1,025			1,560			864			583

*****Max-rescaled R-square is reported for the 1st stage selection model.
The second stage tests have standard errors clustered on BHCs and control for year fixed effects. All p values are one-tailed because of directional predictions.
Variables are defined in Table 1.