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The Market's View on Accounting Classifications for Asset Securitizations

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Abstract: Prior research has examined how investors view asset securitizations, and shows that investors treat securitizations as borrowings, even when GAAP treats them as sales. Upon the adoption of two new accounting standards relating to securitizations, some off-balance-sheet securitized assets were consolidated back onto firms' balance sheets. This study investigated how investors viewed assets that firms consolidated under the new standards and those that firms left unconsolidated. I found that investors differentiated between these two types of securitizations, treating the consolidated assets as borrowings and the unconsolidated assets as sales. I conclude that the new accounting standards are more consistent with equity investors' views of securitizations. I also found that, for the consolidated assets, investors did not distinguish between securitizations going through two different accounting structures. Lastly, this study provides evidence on one information channel that investors use to distinguish between securitizations that may have the economic substance of borrowings versus sales.

Keywords: securitization; bank; retained interest; implicit recourse; risk; bank regulation

1. Introduction

Asset securitizations are a large source of financing for firms, especially for banks. Among securitizing banks, Barth et al. (2012) reported that securitized assets constitute, on average, 20% of banks' total assets. Securitization transactions are accounted for as either sales or secured borrowings, and many of the transactions are treated as sales under GAAP. However, various groups, including financial analysts and investors, have argued that these transactions should be considered borrowings because firms may retain significant risk in securitized assets transferred to special purpose entities (SPEs) by providing implicit (i.e., non-contractual) recourse on the assets.

To provide insight into the ongoing controversy over the accounting for asset securitizations, prior studies have examined how investors view asset securitizations, and indicated that investors assume that, on average, firms will provide implicit recourse on securitized assets (e.g., Niu and Richardson 2006; Landsman et al. 2008). Concerns regarding implicit recourse became apparent during the financial crisis in 2008. Two well-known examples of securitizing firms providing implicit recourse were HSBC Holdings and Citigroup, who bailed out their SPEs in 2007, bringing onto their balance sheets USD 45 billion and USD 49 billion of the SPE assets that had been accounted for as sales (Werdigier 2007; Sidel et al. 2007). These concerns led the Financial Accounting Standards Board (FASB) to issue two new accounting standards, SFAS 166 and SFAS 167, resulting in firms bringing some of their off-balance-sheet securitized assets back onto their balance sheets. This raises the question as to whether, as has been implied by prior research, investors view all securitizations as secured borrowings or treat some securitizations as secured borrowings, but others as sales.

In a recent study, Ahn et al. (2020) found that, on average, investors do not consider relevant securitized assets that receive off-balance (on-balance) treatment under SFAS 166/167 as a risk. This finding suggests that SFAS 166 and 167 result in financial reporting

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that is more aligned with investors' views of asset securitizations. However, they did not distinguish between securitized assets that received off-balance treatment under the old accounting standards and newly securitized assets following SFAS 166/167. As such, it is unclear, from the average relationships that they documented, how investors viewed previously off-balance-sheet securitized assets that firms either consolidated back onto their balance sheets or left unconsolidated, as required by SFAS 166/167. Thus, although their findings collectively suggested that SFAS 166 and 167 are more consistent with investors' views of asset securitizations, these findings do not directly speak to the relative effectiveness of SFAS 166/167 to the old accounting standards at identifying implicit recourse. To fill this void, I have separately examined previously off-balance-sheet securitized assets that firms consolidated under the new standards and those that firms left unconsolidated. By doing so, I have provided more direct evidence on the relative effectiveness of SFAS 166/167. Extending prior research, I also examined whether, for assets consolidated under the new standards, investors distinguished between securitizations going through two different accounting structures prior to the adoption of the new standards. Lastly, I have suggested and tested one possible information channel that investors might use to distinguish between securitizations, that may have the economic substance of borrowings versus sales.

In a typical securitization transaction, a firm transfers pools of financial assets such as mortgages and credit card receivables into an SPE that finances the acquisition of these assets by issuing debt securities. As the securitizing firm knows more about the credit risk of the transferred assets, the firm usually provides some form of recourse to the SPE investors to protect them against potential future losses from these assets. A common feature of securitizations is that the securitizing firm retains first-loss interests in the transferred assets by holding the most junior asset-backed securities issued by the SPE. As explicit guarantees to the SPE violate accounting rules allowing sale accounting, the securitizing firm may instead provide implicit recourse to its troubled securitizations to make up some portion of the losses not covered by the retained interest in securitized assets. The possible presence of implicit recourse makes it difficult for investors to assess the extent of the risk retained. This is because implicit recourse was neither disclosed nor recognized in the financial statements under the old accounting standards. However, the securitizing firm may or may not honor its implicit commitments, at its discretion. Even though the securitizing firm is not legally obligated to honor its implicit recourse, the firm may choose to do so in order to maintain its reputation and future access to securitization markets (Gorton and Souleles 2007). On 30 April 2009, Advanta Corp. announced at its earnings call that it would support its credit card securitizations to prevent early amortization. However, on 11 May 2009, Advanta Corp. announced that it will shut down all of the accounts in the securitization trusts without supporting them. Therefore, to assess the extent of the risk retained by the securitizing firm, investors should estimate the likelihood and extent of the firm providing implicit recourse.

Prior to 2010, firms were able to keep securitized assets off their balance sheets using either qualifying special purpose entity (QSPE) or variable interest entity (VIE) accounting. QSPE and VIE accounting were allowed under SFAS 140 and FIN 46(R), respectively. QSPE accounting focused on ensuring that the securitizing firm had relinquished control over the assets, while VIE accounting emphasized the extent to which the firm had retained risks and rewards from the assets. In the wake of the financial crisis in 2008, regulators and the FASB expressed serious concerns regarding whether those two accounting structures, especially QSPE, properly captured the implicit recourse (Abrams 2012; President's Working Group on Financial Markets (PWG) 2008). To improve the transparency of securitization transactions, the FASB issued two new standards, SFAS 166 and 167, in 2009. Among other things, SFAS 166 eliminated the QSPE exemption from applying VIE accounting, and SFAS 167 replaced the quantitative analysis required under FIN 46(R) with a qualitative analysis. As such, all QSPEs and VIEs in existence upon the adoption of the new standards had to be evaluated for the consolidation of VIEs in accordance with SFAS 167. As a result, some of the QSPE

and VIE assets that had been treated as sales under the prior QSPE/VIE accounting were consolidated back onto firms' balance sheets, as was required by the new VIE accounting. I use the term "old VIE accounting" to refer to the quantitative analysis required under FIN 46(R) and the term "new VIE accounting" to refer to the qualitative analysis required under SFAS 167.

Regulators and the FASB believe that the qualitative analysis required under the new VIE accounting is more effective at identifying implicit recourse than the prior QSPE/VIE accounting (Financial Accounting Standards Board (FASB) 2009b; Federal Register (FR) 2010). However, given that more discretion is allowed under the new VIE accounting, it is not necessarily more effective. If the new VIE accounting is more effective, then investors should have treated those previously off-balance-sheet securitized assets that were ex-post consolidated as secured borrowings, as required by the new VIE accounting. If this is true, then the elimination of QSPE accounting and the replacement of the old VIE accounting with the new VIE accounting would have resulted in financial reporting that is more aligned with investors' views of asset securitizations. Thus, an investigation of how investors assessed the implicit risk associated with the consolidated assets prior to the adoption of SFAS 166/167 provides insight into the benefits of the analysis required under these two new standards.

Extending prior research, I have also examined whether investors distinguished between securitizations going through QSPEs and VIEs in assessing the extent of the implicit risk retained. QSPE accounting considered only the securitizing firm's explicit obligations, but significantly limited the firm's involvement with QSPEs to ensure that the firm had relinquished control of the assets. On the other hand, VIE accounting considered both the firm's explicit and implicit obligations, but the securitizing firm had more discretion under VIE accounting in making assumptions to estimate its exposure to VIEs (Niu and Richardson 2006). Given such differences between QSPEs and VIEs, investors may or may not have assessed differential risk on assets securitized through QSPEs versus VIEs.

I first tested whether investors assessed differential implicit risk for the consolidated assets before SFAS 166/167 became effective in 2010. To do so, I measured equity risk and other variables in 2009 and hand-collected banks' 10-K filings for the fiscal year 2009 QSPE and VIE assets that were either consolidated or left unconsolidated upon the adoption of the new standards. I regressed the equity risk measured in 2009 on the level of the assets collected in 2010. As the level of the assets was not observable at the time when the equity risk was measured, following prior research, I assumed that investors could accurately assess the level of risk associated with securitized assets. I found that equity risk was (was not) significantly positively associated with the consolidated assets (unconsolidated assets). This positive relationship indicates that investors anticipated that firms would provide implicit recourse on the consolidated assets before SFAS 166/167 became effective, suggesting that investors treated the consolidated assets as borrowings prior to the adoption of the new standards. The insignificant relationship between equity risk and the unconsolidated assets provides no evidence that investors treated the unconsolidated assets as borrowings.

Disaggregating the consolidated assets into consolidated QSPE and VIE assets, I found that equity risk was significantly positively associated with both of these assets. These findings suggest that investors treated the consolidated QSPE and VIE assets as borrowings prior to the adoption of SFAS 166/167. More importantly, the t-test showed that the coefficients on these assets were not significantly different from each other. These findings indicate that, for the consolidated assets, there is no evidence that investors distinguished between QSPEs and VIEs with respect to implicit recourse.

Following prior research, I also tested investors' assessments of the risk associated with securitized assets after SFAS 166/167 became effective. Consistent with the findings from prior research, I found that equity risk was significantly positively associated with the retained interest in securitized assets, but was not significantly associated with the non-retained interest in the assets. These findings provide no evidence that investors continued to treat securitizations as borrowings after the new standards became effective.

Overall, the findings above suggest that the new accounting standards are more consistent with equity investors' views of asset securitizations. To the extent that investors are correct in assessing the extent of the risk retained, these findings imply that the new VIE accounting is more effective at identifying implicit recourse than the prior QSPE/VIE accounting.

The findings above also suggest that investors distinguished between securitizations that should have been treated as borrowings versus sales under SFAS 166/167, even before these two new standards required firms to do so. A natural follow-up question is how could investors have distinguished between these different types of securitizations given the lack of disclosure about securitizations? One possible information channel that investors could use is the regulatory Y-9C report. A bank's primary Federal supervisor has the authority to require a bank to add its securitized assets back into its risk-weighted assets for regulatory capital purposes if the agency assesses that the bank has retained significant implicit risk (Federal Register (FR) 2010). Investors may be able to estimate the banking agencies' implicit recourse adjustments from the regulatory report and use these estimated adjustments to identify those SPEs to which the securitizing firm will likely provide implicit support, and to estimate the extent of such support.

To test whether investors can estimate and use the banking agencies' implicit recourse adjustments in assessing the extent of the risk retained, I estimated the amounts of securitized assets added back to banks' risk-weighted assets from Y-9C reports arising from the adjustments of formerly off-balance-sheet securitized assets. I found that equity risk was significantly positively associated with the estimated implicit recourse adjustments. These findings suggest that investors are able to estimate and use the banking agencies' implicit recourse adjustments in assessing the extent of the implicit risk retained. Put differently, investors' views regarding implicit recourse are consistent with the banking agencies' implicit recourse adjustments.

This study contributes to the literature relating the risk relevance of asset securitizations in several ways. First, I have extended prior research by providing more direct evidence that SFAS 166/167 resulted in financial reporting that is more aligned with investors' views of asset securitizations, compared to the old accounting standards. Assuming that investors are correct in assessing the extent of the risk retained, these findings imply that SFAS 166 and 167 better reflect the economics of securitization transactions, which is consistent with the FASB's main objective for adopting the standards (Financial Accounting Standards Board (FASB) 2009a, 2009b). In fact, these findings are somewhat outdated in the U.S. setting, as the new standards have been in effect since 2010. However, they have important and timely implications for standard setters in international settings. For example, the International Accounting Standards Board (IASB) specifies derecognition criteria for securitized assets in IFRS 9. This standard requires the transferor to first carry out the quantitative risk and rewards tests. If it substantially transfers (retains) all the risks and rewards of ownership of securitized assets, it shall derecognize (continue to recognize) the assets. If it neither substantially transfers nor retains all the risks and rewards, it shall conduct the second test to determine whether it has retained control of the transferred assets. Whether it has retained control of the assets depends on the transferee's ability to sell the asset. These two tests closely resemble those tests required under the old accounting standards. The first test is similar to the quantitative test required by FIN 46(R), as this standard focuses on determining if the transferor absorbs the majority of the risk and rewards. The second test is also similar to the control test required by SFAS 140 because one of the conditions required for derecognition of the assets under this standard is whether the transferee has the right to exchange the transferred assets. The findings from this study suggest that the quantitative risk and rewards test, and the control test required by the old standards are not as effective at capturing the risk in securitizations as the qualitative analysis required under the new standards. Thus, the findings provide important and timely policy implications for IASB. To better reflect the economics of securitization transactions, a

more qualitative approach, as required by the new standards, should be incorporated into the derecognition criteria in IFRS 9.

Second, I found that there was no evidence that investors assessed differential risks for assets securitized through QSPEs versus VIEs. This finding has an appeal to critics who place more blame on QSPE accounting for allowing sponsors to hide riskier assets. Third, no current study has offered a mechanism by which investors could estimate the amount of risk retained in off-balance-sheet items, given the lack of disclosure about securitizations. By providing evidence on the information used by investors, I have shed light on the mechanism and have thereby presented findings that are useful to standard setters. For example, these findings provide support for the recently updated Basel III Pillar 3 disclosure requirements. Under this standard, a banking organization is required to calculate and disclose the exposure amount of an off-balance-sheet item using conversion factors, which depend on both explicit and implicit commitments to the item (Federal Deposit Insurance Corporation (FDIC) 2012; Basel Committee on Banking Supervision (BCBS) 2018). For example, an off-balance-sheet asset with a repurchase agreement (cancelable commitment) should be multiplied by a one hundred (zero) percent conversion factor. As the exposure amount incorporates implicit commitment as well as explicit commitment, it should include the implicit recourse adjustments made by the banking agencies. To the extent that this is true, the findings from this study imply that the exposure amount would be one piece of useful information that investors can use in assessing the risk in securitizations and thereby provide support for the new disclosure requirements.

The remainder of the paper proceeds as follows: Section 2 provides background information regarding asset securitizations. Section 3 reviews the related research and Section 4 discusses my hypotheses. Section 5 describes the research methodology. Section 6 describes the sample selection process and descriptive statistics. Section 7 presents the empirical analyses and Section 8 concludes the paper.

2. Background on Asset Securitizations

2.1. SFAS 140 and FIN 46(R)

Prior to 2010, to obtain off-balance-sheet treatment for assets transferred to an SPE, the securitizing firm was required to demonstrate that the transfer of the assets met the conditions required under SFAS 140 to be treated as a sale, and that the firm did not have a controlling financial interest in the SPE in accordance with FIN 46(R). However, QSPE accounting allowed under SFAS 140 provided a means to demonstrate that the securitizing firm had relinquished control of the transferred assets. Therefore, if an SPE was considered a QSPE, then the SPE was exempt from the consolidation requirements required under FIN 46(R). As such, each securitization involving QSPEs needed to meet only the conditions required under SFAS 140. These conditions ensure that the securitizing firm does not maintain control over the transferred assets through certain forms of continuing involvement, but they do not consider the implicit recourse.

To be considered a QSPE, an SPE should be significantly limited in certain aspects. For example, the assets the SPE could hold and the activities the SPE could perform should be significantly limited and entirely pre-specified in the legal documents. These conditions ensure that none of the parties involved in securitization transactions actively managed the transferred assets; therefore, meeting the conditions demonstrates that the securitizing firm relinquished control of the assets. Thus, for those securitizations that qualified for off-balance-sheet treatment under QSPE accounting, the securitizing firm may not have had the incentive and/or opportunity to provide implicit support. However, the conditions required under QSPE accounting considered only the firm's contractual obligations, and the firm's non-contractual obligations such as implicit recourse were not considered. As such, QSPE accounting may not have been effective at identifying securitizations to which the securitizing firm would likely provide implicit recourse.

The conditions for the consolidation of VIEs under FIN 46(R) emphasized the quantitative-based risks and rewards calculation for determining which of the entities had a controlling

financial interest in a VIE. An SPE was considered a VIE if the SPE was insufficiently capitalized or was not controlled through voting (or similar rights). If an SPE was considered a VIE, then a variable interest holder had to consolidate assets and liabilities held in the VIE if it was a primary beneficiary of the VIE. A firm was considered a primary beneficiary if it absorbed the majority of the VIE's expected losses, received a majority of the VIE's expected residual returns, or both. Therefore, the primary beneficiary was exposed to the greatest risks and/or rewards associated with assets and liabilities held in the VIE, which justified the consolidation of the VIE by the securitizing firm considered the primary beneficiary.

In contrast to QSPE accounting, VIE accounting explicitly required the securitizing firm to consider its implicit recourse as well as explicit recourse in estimating its exposure to potential losses from assets transferred to VIEs (Financial Accounting Standards Board (FASB) 2003; FASB Staff Position FIN 46(R)-5 (FSP) 2005). As such, VIE accounting may have been more effective at identifying implicit recourse than QSPE accounting. However, the securitizing firm had more discretion under VIE accounting in making assumptions to estimate its exposure to VIEs. Thus, it is possible that the securitizing firm might not have incorporated any of its implicit recourse. Therefore, VIE accounting may not have been more effective at identifying implicit recourse.

2.2. SFAS 166 and SFAS 167

As was observed during the financial crisis in 2008, some securitizing banks actually provided implicit recourse to their off-balance-sheet securitizations. Regulators and the FASB expressed serious concerns regarding QSPE accounting that had been misused by some firms. The FASB was also concerned that the quantitative analysis required under VIE accounting did not always capture situations in which securitizing firms provided implicit recourse to their VIEs (Financial Accounting Standards Board (FASB) 2009b). For example, some sponsors sold their interests to third parties who absorbed the majority of the VIEs' expected losses. However, these parties typically had very limited power to direct the activities (Financial Accounting Standards Board (FASB) 2009b). In response, the FASB issued two new standards, SFAS 166 and SFAS 167, which became effective at the first annual reporting period, beginning after 15 November 2009.

SFAS 166, among other things, removed the QSPE exemption from applying VIE accounting and replaced quantitative tests with qualitative tests to determine whether a securitizing firm is a primary beneficiary of the VIE. As such, all QSPEs and VIEs in existence had to be evaluated for the consolidation of VIEs in accordance with SFAs 167. As a result of the adoption of SFAS 166/167, some QSPE and VIE assets were consolidated back onto firms' balance sheets.

Under SFAS 167, a variable interest holder is considered a primary beneficiary if it has the power to direct the activities of a VIE that most significantly impact the entity's economic performance, and has the obligation to absorb losses of the entity or the right to receive benefits from the entity that could potentially be significant to the VIE. Under the new VIE accounting, the FASB expects only one party to be the primary beneficiary. However, if power is shared among multiple unrelated parties, then no party is the primary beneficiary. Power is shared if two or more unrelated parties have the power to direct the activities and if decisions regarding those activities require the consent of each of the parties (paragraph 14D, Financial Accounting Standards Board (FASB) 2009b).

Such a qualitative approach may more readily identify implicit arrangements because it analyzes the characteristics of variable interests and VIEs, including their purpose and design. This could help identify which entity has the incentive and opportunity to establish implicit arrangements (Financial Accounting Standards Board (FASB) 2009b). The FASB expects that the qualitative approach is more effective at identifying implicit recourse than the quantitative approach (Financial Accounting Standards Board (FASB) 2009b). The banking agencies also note that such qualitative analysis converges in many respects with their assessments of banks' credit risk exposure to VIEs (Federal Register (FR) 2010). However, the qualitative approach may require firms to make even more subjective judgments and

assumptions in determining the primary beneficiary. As such, the qualitative approach may not be more effective at identifying implicit recourse.

3. Related Literature Review

To provide insight into the ongoing controversy surrounding the financial reporting for assets securitizations, prior research has examined investors' views regarding implicit recourse. To do so, prior studies focused on investors' assessments of the relationship between the securitizing firm's risk and securitized assets. These studies predicted that if investors anticipate that the securitizing firm will (will not) provide implicit recourse beyond the firm's contractual obligations to its troubled securitizations, then the measure of the firm's risk should (should not) be positively associated with the portion of assets transferred to SPEs.

Niu and Richardson (2006) showed that off-balance-sheet debt related to asset securitizations has the same risk relevance as recognized debt for explaining market measures of equity risk (i.e., CAPM beta). Landsman et al. (2008) showed that SPE assets and liabilities are valued similarly to sponsor/originator banks assets and liabilities. These findings indicate that equity holders assume that, on average, firms will provide implicit recourse on securitized assets. This suggests that investors view securitizations as secured borrowings, even when GAAP treats them as sales. Focusing on credit market participants, Barth et al. (2012) examined whether bondholders, and Standard and Poor's differ in their assessments of credit risk associated with securitized assets. Their findings suggest that bondholders (credit rating agents) view securitizations as borrowings (sales). Assuming that investors can accurately assess the risk in securitizations, these studies argue that their results raise questions about whether the sales accounting treatment for asset securitizations appropriately reflects the risk associated with implicit recourse.

Chen et al. (2008) investigated whether equity holders' assessments of the risk associated with securitizations vary with the type of assets securitized. Their findings suggest that equity holders perceive that implicit recourse is a more important issue for residential mortgages and consumer loans than for commercial loans. Cheng et al. (2011) investigated the sources of equity risk associated with securitizations. They argued that market participants are likely to find it difficult to assess the true extent of risk transfer because of the complexity of and the lack of disclosure regarding securitization transactions. They found that bid–ask spreads and analyst forecast dispersion increase with the amount of securitized assets, and that securitizing banks have higher bid–ask spreads and forecast dispersion compared to non-securitizing banks. These findings imply that some investors have a greater difficulty in understanding securitization disclosures.

Ahn et al. (2020) examined how investors view securitizations that receive off-balance or on-balance treatment under SFAS 166/167. They found that, on average, investors do not consider (consider) relevant securitized assets that receive off-balance (on-balance) treatment under SFAS 166/167 to be a risk. These findings suggest that SFAS 166 and 167 result in financial reporting that is more aligned with investors' views of asset securitizations. However, they do not distinguish between securitized assets that received off-balance treatment under the old accounting standards and newly securitized assets following SFAS 166/167. As such, it is unclear from the average relationships that they documented how investors previously viewed off-balance-sheet securitized assets that firms consolidated back onto their balance sheets or left unconsolidated, as required by SFAS 166/167. It is possible that investors treated previously off-balance-sheet securitized assets that firms left unconsolidated (consolidated), as required by SFAS 166/167, as secured borrowings (sales). To the extent that these possible predictions are true, SFAS 166/167 may not be more effective at identifying implicit recourse than the old accounting standards. As the average relationships they find do not address these predictions, they do not provide direct evidence on the relative effectiveness of SFAS 166/167 to the old accounting standards at identifying implicit recourse. To fill this void, I separately examined previously off-balance-sheet securitized assets that firms consolidated under the new standards and those that

firms left unconsolidated. The findings from prior studies are also limited in that they do not distinguish between securitizations going through two different accounting structures, QSPEs and VIEs, in examining investors' views on asset securitizations.

4. Hypotheses Development

As explained in Section 2.2, SFAS 166 and 167 eliminate the QSPE exemption allowed under SFAS 140 and replace the quantitative analysis required under FIN 46(R) with a qualitative analysis. If the new standards are more effective at identifying implicit recourse, then investors should have assessed a significantly higher risk for those securitized assets that were consolidated back onto firms' balance sheets upon the adoption of the new standards than those securitized assets that were left unconsolidated. Thus, my first hypothesis was as follows:

H1. *The magnitude of the association between the securitizing firm's equity risk and securitized assets that were consolidated, as required by SFAS 166 and SFAS 167, is significantly greater than the association between the firm's equity risk and securitized assets that were left unconsolidated.*

Some securitized assets held in QSPEs or VIEs were consolidated back on to firms' balance sheets upon the adoption of the new standards. If QSPE accounting was significantly less effective at identifying implicit recourse than the old VIE accounting, then investors should have assessed a significantly higher risk for securitized assets in QSPEs that were consolidated upon the adoption of the new standards than for securitized assets in VIEs that were consolidated. Thus, my second hypothesis was as follows:

H2. *The magnitude of the association between the securitizing firm's equity risk and securitized assets in QSPEs that were consolidated, as required by SFAS 166 and SFAS 16, is significantly greater than that of the association between the firm's equity risk and securitized assets in VIEs that were consolidated.*

To assess the extent of the risk retained by the securitizing firm, investors should somehow estimate the likelihood and extent of the firm providing implicit recourse. This is because implicit recourse was neither disclosed nor recognized in the financial statements under the old accounting standards. I suggested and tested one possible information channel that investors might use to identify securitizations to which the securitizing firm would likely provide implicit recourse and to estimate the extent of the recourse. If a securitizing bank has provided implicit recourse to its securitizations, then the bank is required to add the securitized assets back to its risk-weighted assets. It is possible that investors can estimate the increase in banks' risk-weighted assets from banks' regulatory reports and use these estimated amounts in assessing the extent of the implicit recourse provided. Thus, my third hypothesis was as follows:

H3. *The securitizing firm's equity risk is positively associated with the increase in banks' risk-weighted assets arising from the adjustments of formerly off-balance-sheet securitized assets.*

5. Research Design

5.1. Tests of H1 and H2

To test H1, I estimated the relationship between equity risk (σ_R) and consolidated securitized assets (*CONS_Securitized*) beyond those *Securitized* during 2009, as follows:

$$\sigma_{Rit+1} = \beta_0 + \beta_1 CONS_Securitized_{it} + \beta_2 Securitized_{it} + \beta_3 Retained_{it} + \beta Controls + \eta_{it+1} \quad (1)$$

σ_{Rit+1} is the standard deviation of daily stock returns for the quarter following the measurement of the securitized assets. *CONS_Securitized* is the sum of QSPE and VIE assets that were consolidated as required by SFAS 166/167. I collected consolidated QSPE assets (*CONS_QSPE*) and consolidated VIE assets (*CONS_VIE*) from banks' 10-K filings for the fiscal year 2009, applying the following procedures: Please see Appendix A for three examples of banks disclosing the impact of SFAS 166/167 on their assets. When

banks disclose the amounts of QSPE and VIE assets consolidated, I recorded these amounts. When banks disclosed both the amount of securitized assets consolidated and the type of these assets without distinguishing between QSPEs and VIEs, I matched that type to the type of assets securitized through QSPEs and VIEs by reading parts of the filings related to securitizations. When banks disclosed only the amount of VIE assets consolidated, I also looked for the type of assets securitized through QSPEs and VIEs to ensure that the consolidated VIE assets were not the QSPE assets. As QSPEs were determined to be considered VIEs under SFAS 167, some banks use VIEs to refer to QSPEs. Lastly, I set *CONS_QSPE* and *CONS_VIE* to zero (i) when there was no sufficient information to determine whether an SPE was a QSPE or a VIE or (ii) when banks mentioned that the impact of adoption of the new standards was immaterial. *CONS_QSPE* and *CONS_VIE* were used for the four quarters of 2009. I assumed that the same amounts of *CONS_QSPE* and *CONS_VIE* were held in QSPEs and VIEs, respectively, during 2009. This assumption was reasonable in that the maturity of mortgage-backed securities for many banks is longer than five or ten years. *Securitized* refers to the total securitized assets, which are the sum of the retained and non-retained interest, scaled by market value of equity. *Retained* refers to the retained interest scaled by market value of equity. Please refer to Appendix B for the description of control variables.

To test H1, I focused on the sign and significance of the coefficient on *CONS_Securitized*. As *Securitized* comprises securitized assets that were either consolidated or unconsolidated, the coefficient on *CONS_Securitized*, β_1, offsets the coefficient on *Securitized*, β_2. As such, β_1 (β_2) reflects investors' assessments of the risk associated with the consolidated (unconsolidated) assets beyond the risk associated with the unconsolidated assets. Following H1, I predicted that β_1 was significantly positive.

Next, to test H2, I extended Equation (1) by disaggregating *CONS_Securitized* into *CONS_QSPE* and *CONS_VIE* as follows:

$$\sigma_{Rit+1} = \gamma_0 + \gamma_1 CONS_QSPE_{it} + \gamma_2 CONS_VIE_{it} + \gamma_3 UNCONS_QSPE_{it} + \gamma_4 Securitized_{it} + \gamma_5 Retained_{it} + \gamma Controls + \mu_{it+1} \quad (2)$$

I also included unconsolidated QSPE assets (*UNCONS_QSPE*) to provide a fuller picture of investors' views on the unconsolidated assets. *UNCONS_QSPE* was computed as total QSPE assets minus *CONS_QSPE*.

Securitized comprised QSPE and VIE assets that were either consolidated or unconsolidated, and all but the unconsolidated VIE assets were included in Equation (2). As such, the coefficient on *Securitized* reflects investors' assessments of the risk associated with the unconsolidated VIE assets. Therefore, γ_1, γ_2, and γ_3 reflect investors' assessments of the risk associated with the consolidated QSPE assets, consolidated VIE assets, and unconsolidated QSPE assets, respectively, beyond the risk associated with the unconsolidated VIE assets.

To test H2, this study focused on the magnitude of the difference between coefficients on *CONS_QSPE* and *CONS_VIE*. H2 predicted that if investors assessed significantly higher implicit risk for the consolidated QSPE assets versus the consolidated VIE assets, then γ_1 should be significantly greater than γ_2.

5.2. Test of H3

Next, I tested whether investors used amounts of securitized assets added back to banks' risk-weighted assets from Y- 9C reports to estimate the extent of the risk retained. These added securitized assets were neither separately recognized nor disclosed. Thus, my test of the association between equity risk and the added securitized assets jointly tested whether investors could estimate and use these assets from Y-9C reports to estimate the extent of the risk retained.

If the securitizing bank has provided support beyond its contractual obligations for securitized assets, then the bank is required to add these assets back to its risk-weighted assets. To do so, the bank should eliminate those securitized assets from the total securitized

assets accounted for as sales. Then, by the amount of the eliminated assets, the bank should increase the amount of loans included in the risk-weighted assets. As an estimate of the increase in banks' risk-weighted assets arising from the adjustments of formerly off-balance-sheet securitized assets (*EST_Securitized*), I used the positive change in the amount of loans weighted by either 50% or 100% from the HC-R section in the Y-9C report, when securitized residential mortgages and/or consumer loans declined at a quarter compared to the previous quarter. Loans can be weighted by between 0% and 200%, depending on the underlying risks of the loans. I focused on the loans for which 50% or higher weights were assigned because residential mortgages and consumer loans in general are weighted by 50% and 100%, respectively. In addition, the non-contractual risk is an issue only for these types of loans (Federal Deposit Insurance Corporation (FDIC) 2012; Chen et al. 2008). To test whether investors used these estimated amounts in assessing the extent of the risk retained (H3), I replaced *CONS_Securitized* in Equation (1) to *EST_Securitized* as follows:

$$\sigma_{Rit+1} = \delta_0 + \delta_1 EST_Securitized_{it} + \delta_2 Securitized_{it} + \delta_3 Retained_{it} + \delta Controls + \nu_{it+1} \quad (3)$$

H3 predicted that if investors could estimate the amounts of securitized assets added back to banks' risk-weighted assets and use these amounts to estimate the extent of the risk retained, then δ_1 should be positive.

6. Sample and Descriptive Statistics

I gathered quarterly data from four sources. I collected quarterly earnings per share to estimate *Earn_VOL* from Bank Compustat, financial statement and securitization data from the regulatory Y-9C report, and stock returns from CRSP. I also collected *CONS_QSPE* and *CONS_VIE* from banks' 10-K filings. To test how investors assessed the risk associated with securitized assets before the new standards became effective in 2010, I measured variables in 2009 in Equation 1. Further, prior research has shown that investors treated asset securitizations as sales after the standards became effective in 2010. To confirm these findings using my sample, I extended the sample period to 2012 and measure variables in Equation (1) between 2010 and 2012. As this study examined investors' views on asset securitizations, I focused on banks that had positive securitized assets in at least one quarter between 2008 and 2009.

Out of 64 banks with positive securitized assets, three bank holding companies were sold to another company after their wholly owned subsidiary banks went bankrupt. To mitigate the outlier effects, I excluded these three banks from my sample. Then, I required banks to have non-missing values for the variables included in Equation (1), which left 196 bank-quarter observations for 49 banks. See Appendix C for details regarding sample selection procedures. Out of 49 banks, 17 banks had positive *CONS_QSPE* and/or *CONS_VIE*, and five banks had positive *UNCONS_QSPE*. Out of the 17 banks, 14 banks had positive *CONS_QSPE*, and seven banks had positive *CONS_VIE*. Four of the seven banks with positive *CONS_VIE* also had positive *CONS_QSPE*.

Table 1 presents the descriptive statistics for the variables used in estimating Equation (1) through Equation (3) for 2009. See Appendix B for variable definitions. The mean *CONS_Securitized* was 0.150, which indicates that approximately twelve percent of the total securitized assets were consolidated back onto firms' balance sheets upon the adoption of SFAS 166/167. *CONS_QSPE* and *CONS_VIE* were 0.124 and 0.017, which represents approximately one-tenth and one-hundredth of *Securitized* assets, respectively. Untabulated findings also revealed that while approximately forty-one percent of off-balance-sheet QSPE assets were consolidated, only three percent of off-balance-sheet VIE assets were consolidated. These findings indicate that SFAS 166/167 had a much greater impact on QSPE assets than VIE assets, making it more interesting and important to test the relative effectiveness of QSPE accounting to the old VIE accounting at identifying implicit recourse.

Table 1. Descriptive Statistics for 2009 (49 Banks—196 Observations).

Variables	Mean	25th	50th	75th	Std. Dev.
σ_R	3.9913	2.3939	3.4646	5.1565	2.0399
CONS_Securitized	0.1504	0	0	0.1016	0.3183
CONS_QSPE	0.1236	0	0	0.0634	0.2844
CONS_VIE	0.0171	0	0	0	0.0524
UNCONS_QSPE	0.1815	0	0	0	0.7582
EST_Securitized	0.1806	0	0	0.0653	0.4590
Securitized	1.2717	0	0.0553	0.8026	2.9646
Retained	0.0633	0	0	0.0035	0.2662
Earn_VOL	0.9575	0.1786	0.5129	1.3420	1.0608
LiquidAssets	5.9704	2.4353	3.8064	6.2970	7.9623
Securities	0.1738	0.1164	0.1502	0.2101	0.0969
Size	16.382	14.621	16.286	17.803	2.1293
ChargeOffs	0.2739	0.0310	0.0953	0.2759	0.7857
PastDue	1.3682	0.2337	0.6541	1.1379	2.9018
IntDeriv	25.137	0.1615	1.3010	8.9976	94.384
TRADINC	0.0095	0.0000	0.0000	0.0066	0.0233
SECINC	0.0075	0.0000	0.0013	0.0072	0.0148
T1_RISK	12.182	10.535	11.840	13.370	2.3540
GAP	3.8554	1.0395	2.4643	4.4390	4.7418
Loans	17.857	6.6523	11.269	20.819	22.612
AssetGrowth	0.4722	−2.1533	−0.3719	1.5315	5.6711
QSPE	0.2857	0	0	1	0.4529

In Table 2, *Securitized* assets declined between 2009 and 2010, but then marginally increased after 2010. Such a sharp decline in securitized assets can be, in part, explained by a one-time consolidation effect upon the adoption of SFAS 166/167. The untabulated findings revealed that the marginal increase in securitized assets was mainly attributable to the increase in securitized mortgage loans. Securitized mortgage loans declined from 1.07 to 0.87 between 2009 and 2010, but then increased to 0.90 after 2010. Overall, securitized assets increased even after the new standards became effective, and such an increase raises questions concerning some criticism that SFAS 166/167 would deter securitizations and consequently lending (Leinfuss 2009).

Table 2. Descriptive Statistics for2009 and 2010–2012.

	2009		2010		2011–2012	
Variables	N	Mean	N	Mean	N	Mean
σ_R	196	3.9913	192	2.9514	222	2.8317
Securitized	196	1.2717	192	0.9559	222	0.9734
Retained	196	0.0633	192	0.0283	222	0.0320

Table 3 shows pairwise correlations among variables included in Equation (1) through Equation (3). *CONS_Securitized*, *CONS_QSPE*, and *CONS_VIE* were positively correlated with equity risk though *UNCONS_QSPE* was also positively correlated. In addition, *EST_Securitized* was positively correlated with *CONS_Securitized* and was not correlated with *UNCONS_QSPE*. This suggests that the banking agencies' assessments of the risk associated with securitized assets, in part, overlapped with the analysis required under SFAS 166/167.

Table 3. Pairwise Correlations.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) σ_R								
(2) CONS_Securitized	0.08 *							
(3) CONS_QSPE	0.18 ***	0.72 ***						
(4) CONS_VIE	0.12 ***	0.25 ***	0.16 ***					
(5) UNCONS_QSPE	0.12 ***	0.08 **	0.15 ***	0.10 **				
(6) EQSPE	0.21 ***	0.24 ***	0.32 ***	0.14 ***	0.00			
(7) Securitized	0.11 ***	0.20 ***	0.10 **	0.34 ***	0.32 ***	0.06		
(8) Retained	0.09 **	0.06	0.10 **	0.07 *	0.48 ***	0.00	0.35 ***	

Table 4 presents distributional statistics for *EST_Securitized*. In 2009, 16 banks had a positive *EST_Securitized* and 15 out of 16 banks were included in my sample. Although the number of banks with a positive *EST_Securitized* declined from 11 to 2 between 2010 and 2012, some banks still had a positive *EST_Securitized* after SFAS 166/167 became effective. Along with the positive correlation between *EST_Securitized* and *CONS_Securitized*, overall, these univariate analyses suggest that the banking agencies' assessments of the securitizing bank's off-balance-sheet exposure, in part, overlapped with, but differed from the analysis required under SFAS 166/167.

Table 4. Distribution of estimated SPE assets (*EST_Securitized*).

			EST_Securitized > 0			
	All Banks		Sample Banks		Non-Sample Banks	
Year	# of Bank	EST_Securitized	# of Bank	EST_Securitized	# of Bank	EST_Securitized
2009	16	0.576	15	0.590	1	0.153
2010	11	0.146	11	0.146	0	0
2011	5	0.080	4	0.052	1	0.251
2012	2	0.074	2	0.074	0	0

These tables report descriptive statistics for the variables used in the baseline and Equation (1) through Equation (3). Tables 1 and 2 present descriptive statistics for 2009, and between 2009 and 2012, respectively. Table 3 report pairwise correlations. See Appendix B for variable definitions. *, **, and *** denote significance at the $p < 0.10$, $p < 0.05$, and $p < 0.01$ level, respectively.

Table 4 reports the distribution of the amount of securitized assets estimated from the Y-9C report that were added back to banks' risk-weighted assets for regulatory capital purposes (*EST_Securitized*). See Appendix B for variable definitions.

7. Results

7.1. Tests of H1 and H2

Table 5 presents the results from estimating the baseline, and Equations (1) and (2) between 2009 and 2012. Column (1) shows that the coefficient on *Securitized* assets was significantly positive (T = 2.23) and the coefficient on *Retained* assets was not significant (T = 1.08). This positive coefficient on *Securitized* assets suggests that, consistent with prior research, investors assumed that, on average, firms would provide implicit recourse on securitized assets before SFAS 166/167 became effective. Put differently, investors treated securitizations that received off-balance treatment under the old accounting standards as borrowings.

Table 5. Relationship between equity risk (σ_R) and consolidated securitized assets (*CONS_Securitized*).

	(1)	2009 (2)	(3)	2010–2012 (4)
	Baseline	H1	H2	
CONS_Securitized		1.425 **		
		(2.30)		
CONS_QSPE			1.554 **	
			(2.16)	
CONS_VIE			3.888 **	
			(2.17)	
UNCONS_QSPE			0.138	
			(1.36)	
Securitized	0.066 **	0.044	0.020	−0.017
	(2.23)	(1.45)	(0.65)	(−0.33)
Retained	0.227	0.185	0.084	0.647 ***
	(1.08)	(0.98)	(0.42)	(3.41)
Earn_VOL	0.138	0.172	0.157	0.109
	(0.78)	(1.05)	(0.93)	(0.75)
LiquidAssets	0.057	0.060	0.060	0.023
	(1.56)	(1.65)	(1.64)	(0.62)
Securities	0.235	−0.038	0.038	0.121
	(0.13)	(−0.02)	(0.02)	(0.08)
Size	−0.131	−0.117	−0.139	−0.150
	(−1.15)	(−1.10)	(−1.13)	(−1.63)
ChargeOffs	−1.521 ***	−1.639 ***	−1.617 ***	−0.263
	(−3.66)	(−4.53)	(−4.49)	(−1.60)
PastDue	0.166	0.338 *	0.313	−0.059
	(0.82)	(1.72)	(1.61)	(−0.40)
IntDeriv	−0.001	−0.002	−0.003 *	0.001
	(−0.71)	(−1.57)	(−1.78)	(1.64)
TRADINC	0.585	0.910	3.210	3.870
	(0.11)	(0.18)	(0.62)	(0.85)
SECINC	−7.853	−3.174	−5.310	−0.695
	(−1.14)	(−0.47)	(−0.80)	(−0.06)
T1_RISK	−0.149 **	−0.156 **	−0.149 **	−0.046
	(−2.30)	(−2.60)	(−2.49)	(−1.09)
GAP	0.051	0.032	0.033	−0.021
	(0.99)	(0.63)	(0.64)	(−0.32)
Loans	0.036	0.017	0.020	0.036
	(1.38)	(0.63)	(0.77)	(1.41)
AssetGrowth	−0.019	−0.022	−0.023	−0.017
	(−1.08)	(−1.17)	(−1.21)	(−1.24)
QSPE	0.221	−0.396	−0.403	−0.225
	(0.48)	(−1.13)	(−1.08)	(−1.08)
Constant	8.328 ***	8.403 ***	8.606 ***	6.236 ***
	(3.65)	(3.88)	(3.63)	(3.32)
t-test: CONS_QSPE = CONS_VIE			−2.33	
			(−1.42)	
FE	Quarter	Quarter	Quarter	Quarter and Year
# of Obs.	196	196	196	414
Adj. Rsq.	0.674	0.694	0.692	0.625

More importantly, Table 5, column (2) shows that, consistent with my prediction in H1, σ_R was significantly positively associated with *CONS_Securitized* beyond the total securitized assets (T = 2.30). This positive coefficient indicates that before SFAS 166/167 became effective, investors anticipated that firms would provide implicit recourse for previously off-balance-sheet securitized assets that were ex-post consolidated, as required by the new accounting standards. Regarding securitized assets that firms left unconsolidated,

the coefficient on *Securitized* assets was not significant (T = 1.45). This insignificant coefficient provides no evidence that investors treated the unconsolidated securitized assets as borrowings.

Table 5, column (3) provides the test results for H2. I found that σ_R was significantly positively associated with both *CONS_QSPE* and *CONS_VIE* (T = 2.16 and 2.17, respectively). These positive coefficients indicate that before SFAS 166/167 became effective, investors anticipated that firms would provide implicit recourse for those QSPE and VIE assets that were ex-post consolidated, as required by the new standards. More importantly, inconsistent with my prediction in H2, the t-test showed that the coefficient on *CONS_QSPE* was not significantly different from the coefficient on *CONS_VIE* (T = −1.42). These findings indicate that for the consolidated assets, there is no evidence that investors distinguished between QSPEs and VIEs with respect to implicit recourse. Regarding the unconsolidated assets, coefficients on *UNCONS_QSPE* and *Securitized* assets were not significant (T = 1.36 and 0.65, respectively). These insignificant coefficients provide no evidence that investors treated the unconsolidated QSPE and VIE assets as borrowings. The findings above are in sharp contrast to the harsher criticism put on QSPE accounting than on the old VIE accounting.

Table 5, column (4) provides the empirical results from testing investors' views on securitizations after SFAS 166/167 became effective. I found that the coefficient on *Securitized* assets was not significant (T = −0.33) and the coefficient on *Retained* assets was significantly positive (T = 3.41). These findings provide no evidence that investors continue to treat securitizations as borrowings that receive off-balance treatment after SFAS 166/167 became effective.

Overall, the findings from Table 5 imply that SFAS 166 and 167 resulted in a consolidation model that was more consistent with equity investors' views of asset securitizations. Assuming that the market is correct in assessing the extent of the risk retained, these findings imply that the new VIE accounting is more effective at identifying implicit recourse than the prior QSPE/VIE accounting.

Table 5 reports the regression results of one-quarter-ahead standard deviation of daily stock returns (σ_R) between 2009 and 2012, as estimated by the baseline, and Equations (1) and (2). Please refer to Appendix B for description of all the variables. *, **, and *** denote significance at the $p < 0.10$, $p < 0.05$, and $p < 0.01$ level, respectively. T-statistics are based on the standard errors clustered by firm.

7.2. Tests of H3

Table 6 presents the results from estimating Equation (3). Column (1) of Table 5 is included for a comparative purpose. Consistent with my prediction in H3, column (2) shows that σ_R was significantly positively associated with *EST_Securitized* (T = 3.08), which suggests that investors can estimate the increase in banks' risk-weighted assets arising from the adjustments of formerly off-balance-sheet securitized assets and use these added assets to estimate the extent of the implicit risk retained. Put differently, investors' views regarding implicit recourse are consistent with the banking agencies' implicit recourse adjustments. Interestingly, the coefficient on *Securitized* assets remained significantly positive (T = 2.27). Along with the positive correlation between *EST_Securitized* and *CONS_Securitized*, these findings suggest that the banking agencies' implicit recourse adjustments, in part, overlapped with, but differed from the analysis required under the new standards.

Table 6. Relationship between equity risk (σ_R) and estimated SPE assets (*EST_Securitized*).

	2009	
	(1)	**(2)**
	Baseline	H3
EST_Securitized		0.716 ***
		(3.08)
Securitized	0.066 **	0.067 **
	(2.23)	(2.27)
Retained	0.227	0.246
	(1.08)	(1.16)
Earn_VOL	0.138	0.076
	(0.78)	(0.46)
LiquidAssets	0.057	0.064 *
	(1.56)	(1.79)
Securities	0.235	0.044
	(0.13)	(0.03)
Size	−0.131	−0.158
	(−1.15)	(−1.43)
ChargeOffs	−1.521 ***	−1.587 ***
	(−3.66)	(−4.16)
PastDue	0.166	0.261
	(0.82)	(1.31)
IntDeriv	−0.001	−0.000
	(−0.71)	(−0.27)
TRADINC	0.585	2.574
	(0.11)	(0.53)
SECINC	−7.853	−12.522
	(−1.14)	(−1.65)
T1_RISK	−0.149 **	−0.156 **
	(−2.30)	(−2.60)
GAP	0.051	0.035
	(0.99)	(0.67)
Loans	0.036	0.027
	(1.38)	(1.04)
AssetGrowth	−0.019	−0.019
	(−1.08)	(−1.06)
QSPE	0.221	0.107
	(0.48)	(0.27)
Constant	8.328 ***	8.874 ***
	(3.65)	(3.95)
FE	Quarter	Quarter
# of Obs.	196	196
Adj. Rsq.	0.674	0.693

An alternative explanation for the positive relationship between equity risk and the *EST_Securitized* is that, even though the banking agencies' implicit recourse adjustments are not associated with the implicit risk, investors may price the adjustments if the banking agencies require firms to include the adjustments in calculating their regulatory capital ratio. However, as one of the controls, Equation (3) includes tier 1 risk-based capital ratio, which captures firms' regulatory capital risk. In addition, Table 7 reports the results from regressing *EST_Securitized* on the consolidated and unconsolidated assets, which suggested that the adjustments are associated with the implicit risk. Column (1) shows that the coefficient on *CONS_Securitized* was significantly positive (T = 3.89). Column (2) reports that the coefficient on *CONS_QSPE* was significantly positive (T = 3.60) whereas the coefficient on *UNCONS_QSPE* was not significant (T = −1.17). The t-test showed that the coefficient on *CONS_QSPE* was also significantly greater than the coefficient on *UNCONS_QSPE* (T = 3.68). The coefficient on *CONS_VIE* was not significant (T = 0.84) though it was not significantly different from the coefficient on *CONS_QSPE* (T = −0.17).

These findings suggest that the banking agencies' implicit recourse adjustments capture the risk associated with implicit recourse, at least to the extent that the consolidated assets are associated with such implicit risk. Overall, these findings alleviate concern over the regulatory capital risk explanation.

Table 7. Relationship between estimated SPE assets (*EST_Securitized*) and consolidated securitized assets (*CONS_Securitized*).

	2009	
	(1)	**(2)**
CONS_Securitized	0.388 ***	
	(3.89)	
CONS_QSPE		0.406 ***
		(3.60)
CONS_VIE		0.512
		(0.84)
UNCONS_QSPE		−0.050
		(−1.17)
Constant	0.122 ***	0.131 ***
	(3.49)	(3.58)
t-test:		
CONS_QSPE = CONS_VIE		−0.106
		(−0.17)
CONS_QSPE = UNCONS_QSPE		0.456 ***
		(3.68)
CONS_VIE = UNCONS_QSPE		0.562
		(0.91)
# of Obs.	196	196
Adj. Rsq.	0.068	0.057

Table 6 reports the regression results of one-quarter-ahead standard deviation of daily stock returns (σ_R) for 2009, as estimated by the baseline and Equation (3). Please refer to Appendix B for description of all the variables. *, **, and *** denote significance at the $p < 0.10$, $p < 0.05$, and $p < 0.01$ level, respectively. T-statistics are based on standard errors clustered by firm.

Table 7 reports the results from regressing estimated securitized assets (*EST_Securitized*) on consolidated securitized assets (*CONS_Securitized*) in column (1), and on consolidated QSPE assets (*CONS_QSPE*), consolidated VIE assets (*CONS_VIE*), and unconsolidated QSPE assets (*UNCONS_QSPE*) in column (2). Please refer to Appendix B for description of all the variables. *, **, and *** denote significance at the $p < 0.10$, $p < 0.05$, and $p < 0.01$ level, respectively.

8. Conclusions

Prior studies have examined how investors view asset securitizations, and indicated that investors treat securitizations as borrowings, even when GAAP treats them as sales. Concerns regarding the accounting for asset securitizations led the FASB to issue two new accounting standards. Upon the adoption of these new rules, some off-balance-sheet securitized assets were consolidated back onto firms' balance sheets. This study examined whether the new accounting standards resulted in financial reporting that is more aligned with investors' views of asset securitizations. To address this question, I investigated how investors viewed previously off-balance-sheet securitized assets before the new standards came into effect. In doing so, this separately examined assets that firms consolidated under the new standards and those that firms left unconsolidated. Extending prior research, I also examined whether, for assets consolidated under the new standards, investors distinguished between securitizations going through two different accounting structures. Lastly, I suggested and tested one possible information channel that investors might use to

distinguish between securitizations that may have the economic substance of borrowings versus sales.

I found that investors treated the consolidated assets (the unconsolidated assets) as secured borrowings (sales) before the new standards became effective. These findings suggest that the new accounting standards are more consistent with investors' views of asset securitizations. Assuming that investors can accurately assess the risk in securitizations, the findings imply that the new accounting standards better reflect the economics of securitization transactions, which is consistent with the FASB's main objective for adopting the standards. These findings provide important and timely implications for standard setters in international settings. IASB, for example, currently adopts rules similar to the old accounting standards. The findings suggest that IASB can better reflect the economics of securitizations by incorporating rules similar to the new standards adopted in the U.S. Extending prior research, I also found that, for the consolidated assets, there was no evidence that investors assessed differential risk on securitizations going through two different accounting structures. These findings will have an appeal for critics who blame one of the structures for allowing firms to hide riskier assets. Lastly, I found that investors use the banking agencies' adjustments in assessing the risk in securitizations. By providing evidence on the information used by investors, I have presented findings that are useful to standard setters, as these findings provide support for the recently updated Basel III Pillar 3 disclosure requirements.

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Appendix A. 10-K Filings Examples—Impact of SFAS 166 and 167

(A) FIRST CITIZENS BANCSHARES, INC.: CONS_QSPE = USD 97,291 and CONS_VIE = USD 0

In 2005, FCB securitized and sold approximately USD 250,000 of revolving mortgage loans through the use of a QSPE. The analysis of this QSPE under the new accounting guidance determined that the financial assets of the VIE should be included in the consolidated financial statements. This consolidation became effective in the first quarter of 2010, resulting in an increase in loans and debt of an amount equal to the fair value of the instrument at time of consolidation. The balance of these loans and the corresponding debt obligation as of 31 December 2009 was USD 97,291 and USD 85,849, respectively.

(B) BANK OF AMERICA CORPORATION: CONS_QSPE = USD 70 billion and CONS_VIE = USD 30 billion

The adoption of this new accounting guidance resulted in a net incremental increase in assets, on a preliminary basis, of approximately USD 100 billion. This included USD 70 billion resulting from the consolidation of credit card trusts and USD 30 billion from the consolidation of other special purpose entities (SPEs) including multi-seller conduits.

The corporation securitizes, sells, and services interests in residential mortgage loans and credit card loans, and from time to time, automobile, other consumer and commercial loans. The securitization vehicles are typically QSPEs, which, in accordance with applicable accounting guidance, are legally isolated, bankruptcy remote, and beyond the control of the seller. In addition, they are not consolidated in the corporation's consolidated financial statements.

Other special purpose financing entities (e.g., corporation-sponsored multi-seller conduits, collateralized debt obligation vehicles, and asset acquisition conduits) are generally funded with short-term commercial paper or long-term debt. For non-QSPE structures or VIEs, the corporation assesses whether it is the primary beneficiary of the entity.

(C) BANCORPSOUTH, INC.: CONS_QSPE = USD 0 and CONS_VIE = USD 0

In June 2009, the FASB issued a new accounting standard regarding accounting for transfers of financial assets. The company believed that the adoption of this new accounting standard regarding accounting for transfers of financial assets would have no material impact on the financial position or results of operations of the company.

In June 2009, the FASB issued a new accounting standard regarding consolidation of variable interest entities. The company believed that the adoption of this new accounting standard regarding consolidation of variable interest entities would have no material impact on the financial position or results of operations of the company.

Appendix B. Variable Definitions

σ_R	Standard deviation of daily returns for the following quarter.
CONS_ Securitized	Consolidated securitized assets, defined as the amount of securitized assets that were consolidated upon the adoption of SFAS 166/167, divided by the market value of equity.
CONS_QSPE	Consolidated QSPE assets, defined as the amount of securitized assets sold to QSPEs that were consolidated upon the adoption of SFAS 166/167, divided by the market value of equity.
CONS_VIE	Consolidated VIE assets, defined as the amount of securitized assets sold to VIEs that were consolidated upon the adoption of SFAS 166/167, divided by the market value of equity.
EST_ Securitized	Estimated securitized assets, defined as the amount of securitized assets estimated from the Y-9C report that were added back into banks' risk-weighted assets.
UNCONS_ QSPE	Unconsolidated QSPE assets, defined as the amount of outstanding securitized assets sold to QSPEs that were not consolidated upon the adoption of SFAS 166/167, divided by the market value of equity.
Securitized	Total securitized assets divided by the market value of equity.
Retained	Total retained interest in securitized assets divided by the market value of equity.
Earn_VOL	Standard deviation of earnings per share for the previous six quarters.
GAP	Absolute value of the difference between the book values of assets and liabilities expected to reprice in the following quarter divided by the market value of equity.
LiquidAssets	Sum of cash, available-for-sale securities, trading assets, federal funds sold, and securities purchased with an intent to resell, scaled by the market value of equity.
Securities	The sum of available-for-sale and held-to-maturity securities minus the retained interest divided by total assets.
Size	Natural logarithm of total assets.
Loans	Total loans divided by the market value of equity.
ChargeOffs	Net loan charge-offs divided by the market value of equity.
PastDue	Past due and non-accruing loans divided by the market value of equity.
IntDeriv	Notional amount of interest rate derivatives divided by the market value of equity.
TRADINC	Trading income during the quarter divided by the market value of equity.
SECINC	Servicing fee and securitization income during the quarter divided by the market value of equity.
T1_RISK	Tier 1 risk-based capital ratio.
AssetGrowth	Percentage growth in managed assets (asset plus total securitized assets) for the quarter.
QSPE	Indicator set to 1 if a firm had assets securitized through QSPEs that were consolidated back onto its balance sheets, as required by SFAS 166/167; zero otherwise.

Appendix C. Sample Selection Procedures

	# of Bank	# of Quarter
(1) Positive securitized assets, at least once between 2008 and 2009	64	
(2) Exclude banks that went bankrupt between 2009 and 2012	61	
(3) Non-missing variables	49	196
Consolidated no assets	32	128
Consolidated only QSPE assets	10	40
Consolidated only VIE assets	3	12
Consolidated both QSPE and VIE assets	4	16

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