

THE IMPACT OF SECURITIZATION ON BANK'S CREDIT RISK TAKING BEHAVIOR

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Abstract

This research studies the impact of securitization on the credit risk-taking behaviour of banks. Using a sample of the 100 largest U.S. banks over the period 2001 to 2010, we find that when use risk weighted asset to total asset ratio as a credit risk measurement, there is a positive relationship between securitization and bank's credit risk taking behaviour. However, when use non-performing asset to total asset ratio as a credit risk measurement, we find a negative relationship between securitization and bank's credit risk taking, and both findings are statistically significant for period 2001 to 2007. After we decompose the aggregate securitization, we find that various underlying assets have mixed effects of the overall impact of securitization on bank's credit risk taking behaviour, with the Family Residential Loans tend to always contribute the most to the aggregate securitization's impact. In sum, we conclude that the impact is ambiguous and the relationship will depend on the economic conditions.

Key words: Securitization, Credit Risk, US Banks

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Section 1. Introduction

Being an efficient channel when banks want to seek external funding support, securitization had been gaining its high popularity in a very short period of time since invented. However, the recent financial crisis to some degree reflects the risky side of securitization and its related products, a famous example of that would be the failure of Lehman Brothers in 2008. After that banking institutions have started thinking about not only the benefits securitization may bring in, but also the possible problems it could lead to. Therefore, nowadays securitization related activities and their inherent benefits and risks have all become a controversy for financial institutions.

Previous research studies of the impact of securitization on banks have agreed that a positive link between securitization and bank risk exists (for example, Dimnne and Harchaoui 2003; Uzun and Webb 2007). Because banks can use securitization to convert illiquid assets into liquid ones, their liquidity will increase and therefore they will seek for riskier assets to hold. Nonetheless there is very limited researches have been done in the area of how securitization is going to impact banks' willingness to hold riskier assets in their portfolios.

Cebenoyan & Strahan (2004) and Purnanandam (2009) once showed in their studies that, securitization as a tool to provide banks additional funding support and to increase their liquidity, it might therefore motivate banks to invest in assets with higher risks and returns. However, this opinion is challenged by some scholars (Calomiris and Mason 2004; Vermilyea, Webb, and Kish 2008) because of the existence of loss sharing

agreements retained by the issuing banks. Those agreements are argued to actually increase issuing banks' risks, just in off-balance sheet activities form. That is to say, securitization can expose the issuing bank to more credit risk.

Given what being done by Casu et al. (2011), this study aims to contribute to the existing literature by extending the sample period three more years to cover the recent financial crisis period. Before the crisis, we follow our precedent paper's hypothesis, which is greater outstanding securitization will bring greater credit risk exposure, therefore make banks more risk averse and tend to invest in lower credit risk assets (please refer to Table 1 for the expected signs of other control variables). During the crisis, we conjecture that the impact of securitization on banks risk taking behavior may be different due to the change of economy environment. Under normal economy condition investors in general do not think that much about assets' risk before they invest, but this may not be the case when the crisis comes. During the hard time investors should be fully aware about the inherent risk any investment contains, therefore it becomes harder for banks to sell out their risky assets, namely banks can not reduce their risk through securitization easily any more. Following this argument, we predict that securitization's impact on bank's behavior should change along with the whole economy.

After our empirical analysis, a positive relationship is indicated when using RWATA to measure credit risk, and the coefficient is statistically significant for period 2001 to 2007. This is inconsistent with what Casu et al. (2011) report in their study. But after we switch

to use NPATA to measure credit risk, a negative relationship is showed and is also significant for period 2001 to 2007. This is consistent with the result in Casu et al. (2011), which is also our hypothesis. Under both measurements, the significance of securitization's coefficient changes for period 2001 to 2007 and period 2008 to 2010.

The reminder of this paper is organized as follows: Section 2 reviews the recent relevant literature within this field of study; Section 3 introduces our regression models and each variable; Section 4 describes summary statistics of our sample data; Section 5 reports our regression reports; our robustness tests are presented in Section 6; and finally Section 7 discusses the findings and concludes our paper.

Section 2. Literature Review

Often been criticized as the main driver of the 2007 financial crisis, securitization has caught increasing attention by researchers. The relationship between securitization and risk is one of the main focuses. Early researchers argue that securitization is a risk management tool (Greenbaum and Thakor 1987). Later studies analyze this issue in more detail.

First of all, researchers find that banks are more likely to securitize their riskier loans. Carey (1998) suggests that the default rates on the securitized loans are higher than the securitized loans. Dell'Ariccia, Igan, and Laeven (2009) and Keys et al. (2010) find evidence that US banks securitized there worse mortgage loans in last decade.

Moreover, recent studies suggest that although banks transfer some of the default risk through securitization, banks are still exposed to credit risk raised from implicit and/or explicit arrangements (Gorton and Pennacchi 1995). Chen, Liu, and Ryan (2008) find that banks level of credit risk exposes varies by type of securitization.

Secondly, when taking into accounts the above arguments, researchers have mixed conclusions on the impact of securitization on banks overall risk. Some scholars find a positive relationship between securitization and risk. Dionne and Harchaoui (2003) find a positive relationship between securitization and bank's credit risk taking. Jiangli and Pritsker (2008) suggest that mortgage securitization reduces bank insolvency risk. Others find that securitization reduces a portion of bank risk. Cebenoyan and Strahan (2004) and Purnanandam (2009) suggest that securitization reduces bank risk, but banks use the proceeds from securitization to take new risks.

In sum, previous studies have focused on the quality of the securitized assets and the impact of securitization on banks overall risk. This study attempts to attributes to the existing literatures by finding out banks credit risk taking behaviour as a result of securitization, and the robustness of the impact during the financial crisis period.

Section 3. Empirical Model

Casu et al. (2011) investigate whether outstanding securitization has an impact on the risk-taking behavior of the issuing bank during the period from 2001 to 2007. They find that banks with a greater amount of assets securitized are more risk-averse in their

activities. After breaking down the total securitization by each category, they also find that the negative relationship between securitization and risk taking is mainly driven by securitizations of mortgages, home equity lines of credit, and other consumer loans. Among these, securitized home equity lines of credit has the most negative relationship with banks' credit risk taking behavior.

Our empirical model is adapted from the one used by Casu et al. (2011). We extend the sample period (from 2001 to 2010), in order to consider the recent financial crisis. Our equation is:

$$\Delta CrR_{i,t} = \beta_1 Sec_{i,t-1} + \beta_2 Size_{i,t-1} + \beta_3 Loan_{i,t-1} + \beta_4 Cap_{i,t-1} + \beta_5 ROA_{i,t-1} + \beta_6 ChOff_{i,t-1} + \theta Year + \theta_i + \varepsilon_{i,t}$$

where i denotes the bank. t denotes the year. We use annual data instead of quarterly data in this paper, since Berger and DeYoung (1997) once mentioned that the end-of-year call report data are more accurate and smooth-out short-run aberrations in the data better than do quarterly data. Therefore we replace quarter dummies with year dummies in our equation. θ represents time-invariant, unobserved and unique bank characteristics, for example, CEO's personality. We need to control for bank related factors like this since it may impact or bias the outcome. Lastly ε is the error term.

For the dependent variables, to measure the changes of bank's credit risk raking, we use Risk Weighted Assets/Total Assets (RWATA) and None Performing Assets/Total Assets (NPATA). Table 1 presents the definition of variables. Casu et al. (2011) include a detailed discussion of each variable (except NPATA) that we briefly summarize below.

RWATA is defined as a bank's risk-weighted assets divided by its total assets. Casu et al. (2011) primarily use RWATA as the dependent variable. They mention in the study that Shrieves and Dahl (1992) suggest the RWATA ratio captures principal features of a bank's portfolio risk, such as allocation of assets and the quality of its loans.

NPATA is defined as Non-performing assets divided by total assets.

Besides that, as Berger and DeYoung (1997) suggest, the NPATA ratio has the benefit of being less subject to managerial discretion. Also, several recent studies use this ratio to measure bank risk taking as well, such as Ghosh (2009), Jimenez et al. (2010), and Jones et al. (2011). These all indicate that NPATA is an efficient measurement for credit risk taking.

Securitization (Sec) is introduced as a bank's outstanding balance of securitized assets scaled by total assets. Casu et al. (2011) argue that holding securitized pool makes banks more risk-averse so they tend to shift portfolios toward lower credit risk assets. As a result, a negative relationship between outstanding securitization and credit risk taking should be found. Consistent with this argument, Casu et al. (2011) find there is a significantly negative sign between securitization and change of RWATA.

Bank size (Size) is measured as the natural logarithm of total assets. This factor should be taken into account since Louskina (2005) mentions that largest banks have sufficient quantity and homogeneity of loans to better access the securitization market independently among other financial institutions. Given this better access to external

funding support and the credit risk transfer market for large banks, a positive relation between bank size and its engagement in high risk/return activities should be expected. Consistent with this argument, Casu et al. (2011) find that larger banks tend to pursue higher risk activities.

From the balance sheet, Casu et al. (2011) include the loan ratio and the capital ratio into the model to control for their possible effect on bank risk taking. The loan ratio (Loan) is measured as loans over total assets; this can reflect the size of a bank's loan portfolio. Casu et al. (2011) considers loans as relatively riskier assets, therefore a bank with a larger loan portfolio should be more risk-averse. Not surprisingly, Casu et al. (2011) find a significantly negative sign for the parameter of Loan, reflecting an adverse impact the size of the loan portfolio has on bank risk taking.

Bank capital (Cap) is measured as the ratio of equity capital to total assets. Casu et al. (2011) argue that there should be a negative coefficient on this variable since Anderson and Fraser (2000) show that for US banks, managerial shareholdings and risk taking became inversely related in the early 1990s due to additional regulations. In their empirical analysis Casu et al. (2011) find the expected negative effect equity capital has on bank risk taking, but it is not statistically significant.

From the income statement, Casu et al. (2011) include ROA and the charge-off ratio (ChOff) to account for the possible impact of the present performance on a bank's incentive to take on new risks. They argue that poor-performing banks (i.e. those with a

low ROA) might pursue risky and high return activities to re-establish profitability. That is why we expect a negative relation between bank profitability and risk. After analysis, Casu et al. (2011) find a negative but not significant link.

The charge-off ratio reflects the asset quality of a loan portfolio. Casu et al. (2011) identify that low quality loans should discourage the bank manager from taking on more risk in the following period. Consistent with their thoughts, Casu et al. (2011) find a negative link between the charge-off ratio and risk taking.

Section 4. Summary Statistics

Our empirical analysis is based on panel data over the period 2001-2010. Compared to Casu et al. (2011) we extend the sample period by three more years to cover the recent financial crisis, so that we can explore if the impact of securitization as well as other variables on banks' risk taking behavior is going to change before and during the crisis.

We obtain our data from the Federal Reserve's FR Y-9C database like what Casu et al. (2011) did in their paper. However, instead of focusing on 2000 plus banks we only examine the 100 largest banks in the US. As what mentioned in the last section, Loutskina (2005) notes that only the largest banks in the USA can have a sufficient quantity and homogeneity of loans to access the securitization market independently. Therefore a sample set consists of 100 largest banks in the US should be efficient enough for our study. As indicated in the above section, even though accounting data in

Federal Reserve's FR Y-9C database are filed on a quarterly basis, we use annual data instead of quarterly data. Therefore after downloading we delete the first three quarters' data and only the end-of-year data left. According to Casu et al. (2011), Schedule HCS of the Y-9C form reports the breakdown of securitization into seven categories: 1-4 family residential loans; home equity lines; credit card receivables; auto loans; other consumer loans; commercial and industrial loans; and all other loans, all leases, and all other assets. We follow this definition here in our study.

During the sample period, banks may experience merger and/or acquisition, or failure, therefore the total number of banks in our sample set decreases every year. Table 2 shows the number of banks in each year over the sample period, starting from 100 in year 2001.

Table 3 presents summary statistics of our sample. To emphasis the potential changes happened due to financial crisis, after reporting the overall summary statistics we separate the whole period into two sub-periods, before crisis (2001-2007) and during crisis (2008-2010). We report means and standard deviations for variables over two sub-periods, as well as the difference in means before and during the financial crisis with the statistical significance.

For the whole period from 2001 to 2010, the dependent variable RWATA has a mean value of 0.720 with a standard deviation of 0.194. The other dependent variable NPATA has a mean value of 0.009 with a standard deviation of 0.009. When only considering

period 2001 to 2007, RWATA has a mean of 0.714, which is comparable with the mean value of 0.712 reported in Casu et al. (2011). Its standard deviation 0.205 is much higher than that of 0.118 reported in Casu et al. (2011), which makes sense since Casu et al. (2011) study 2190 banks, usually larger sample size will reduce sample deviations. Looking at independent variables, over the period 2001-2007, Loan has a mean of 0.596, which is smaller than what being reported in Casu et al. (2011). And for the Capital we get a mean of 0.090 that is very close to 0.091, what reported in Casu et al. (2011). So on average top largest banks take fewer amounts of loans but hold similar amount of equity. Under the same period for ROA we get a mean of 0.013, which is higher than that in Casu et al. (2011), saying that largest banks on average have better performance during 2001-2007. For Charge-off ratio we have a mean of 0.006, this is much larger than what being reported in Casu et al. (2011). This shows that the quality for largest banks' loan portfolio is worse than average banks. This is because large banks usually hold better reputation and stronger external funding support, which allow them to issue riskier and higher-return loans. This to some degree also explains the theory of "Too Big to Fail".

To examine the impact financial crisis may have on banks, now we look at the last three columns—Difference in means. Between two dependent variables, the mean for NPATA increases more than 61% during the crisis, and this difference is statistically significant. This indicates that, when using NPATA as a measurement of bank's credit risk, we can conclude banks became riskier during the crisis. Several other changes in mean are also statistically significant. Securitization activities decreased more than 100% during

the crisis. When we decompose it into seven categories, we can see massive and very significant decreases in credit card receivables (CrCR), auto loans (AutoL) and other consumer loans (OtherC) contribute the most to the overall decrease in aggregate securitization. Looking at other control variables, Size increased during the crisis due to Merger & Acquisition activities. Capital ratio went up to ensure banks' safety, as regulation required. Not surprisingly the performance measurement ROA decreased 532% with a p-value of 0 during the crisis compared with before. Moreover, the statistically significant increase in mean of charge-off ratio tells us that the quality of banks' loan portfolios decreased during the crisis. This further confirms that the crisis makes banks riskier.

Table 4 presents the correlation matrix with all variables in panel A. Panel B shows correlations after we decompose securitization. The highest correlation in panel A (0.6864) occurs between NPATA and charge-off ratio, and it is statistically significant. Compared with the low correlation (0.0508) between RWATA and Charge-off ratio, we can infer that the NPATA is an efficient measurement for bank's credit risk taking, since charge-off ratio to some extent reflects bank's credit risk level from the perspective of the quality of loan portfolios banks are holding. One more correlation is noteworthy. The correlation between two dependent variables we are going to use in regression, RWATA and NPATA, is surprisingly very small (0.1161) and significant, which shows that the two measurements of credit risk we choose are not necessarily moving together.

Section 5. Empirical results

Following Casu et al. (2011), we estimate our equation with fixed effects regression. Since observations on the same bank over time are likely to be correlated, each regression is performed with robust standard errors that are corrected for clustering at bank level. Firstly, we estimate for period 2001 to 2007 to compare our results with the results from Casu et al. (2011). Then, we perform regressions over the period of 2008 to 2010 to take into account the influence of the financial crisis. Finally, we perform regressions over the period 2001 to 2010 to test the hypothesis for a longer period. We report our results in Table 5. Test results for period 2001 to 2010 are not reported in the table. Moreover, Year dummies are incorporated in all of the regressions, but are not reported in the table.

Column (1) to (2) represents coefficients using RWATA as the risk measure. Column (1) represents period 2001 to 2007 and Column (2) represents period 2008 to 2010. The main focus of our research is on securitization. The coefficient on securitization is positive for all periods, suggesting that with the knowledge of increasing credit risk exposures arise from increasing volume of securitization pool, banks are more tolerance to credit risks. In other words, as securitization increases, banks tend to shift their portfolios toward assets with higher credit risk. This result is inconsistent with the previous study done by Casu et al. (2011). Moreover, although the coefficient on securitization is significant at the 1 percent level for period 2001 to 2007, it is insignificant for period 2008 to 2010.

In Column (1), majority of the coefficients on other control variables are significant and are broadly consistent with what reported in Casu et al. (2011). In particular, the coefficient on size is positive and significant at 5% level, suggesting that larger banks are more capable and willing to take more risks than smaller banks do. The coefficient on loan is negative and significant, suggesting that as loan ratio decreases, banks are more risk tolerant. Hence, a larger amount of loans results in higher credit risk exposure and makes banks more risk-averse. The coefficient on equity-capital ratio is negative and significant, suggesting that when equity-capital ratio increases, banks are risk adverse and vice versa. Moreover, for period 2008 to 2010, the coefficients on other variables are consistent with our expectations, with only the coefficient of loan being statistically significant.

Column (3) to (4) demonstrate estimates using NPATA as the dependent variable, with Column (3) represents period 2001 to 2007 and Column (4) represents period 2008 to 2010. The coefficient on securitization is negative for all periods and statistically significant for period 2001 to 2007, suggesting that as securitization increases banks tend to shift their portfolios toward assets of lower credit risk. This result supports the proposed hypothesis that securitization is expected to have a negative effect on the risk-taking behaviour of the issuing bank as a result of credit exposure arising from the securitized pool. However, the result is inconsistent with our results using RWATA as the dependent variable. Furthermore, in Column (3), several coefficients on other variables are inconsistent with our expectations. In particular, the coefficient on loan is positive and significant, suggesting that as loan ratio increases, banks are more risk

tolerant and vice versa. Nevertheless, the results for period 2008 to 2010 are broadly consistent with those for period 2001 to 2007.

In order to exam the impact of securitization in more details, we perform the same regressions over seven categories of underlying assets that compose securitization. The seven categories are: (i) family residential loans; (ii) home equity lines of credit; (iii) credit card receivables; (iv) auto loans; (v) other consumer loans; (vi) commercial and industrial loans; and (vii) all other loans and leases. Table 6 shows the regression results using RWATA as the dependent variable and Table 7 shows the regression results using NPATA as the dependent variable. We scale the underlying assets by total assets.

Looking at Table 6, for period 2001 to 2007, the test results indicate that majority of the estimates is consistent with previous study but with some exceptions. For instance, the coefficients on family residential loans and other consumer loans are positive and significant at 5 percent level. Although half of the test results from period 2008 to 2010 are inconsistent with those from period 2001 to 2007, those deviations are statistically insignificant. The exception is all other loans and leases. It has a negative effect on bank's credit risk taking and is statically significant.

Looking at Table 7 that shows that result for NPATA, for period 2001 to 2007, the test results are broadly consistent with those in Casu et al. (2011). Two major deviations are home equity lines of credit and commercial and industrial loans that have positive

relationships with bank's credit risk taking and are statistically significant. Furthermore, for period 2008 to 2010, majority of the test results are consistent with the results for period 2001 to 2007. The exceptions are home line of credits and all other loans and leases, but they are statistically insignificant.

Section 6. Robustness Test

We test the robustness of our main regression results in several ways. First of all, following Casu et al. (2011), we use fixed effect regression to estimate. With the fixed effect model, we assume that the correlation between bank associated variable, θ_i , and error term, $\varepsilon_{i,t-1}$, is not zero. Nevertheless, to verify that fixed effect model is appropriate and to ensure that our assumption is adequate, we re-estimate our regressions using random effect model. The results are presented in Table 8, Table 9, and Table 10. The RWATA results and the RRWATA results are largely consistent with each other. However, when compared the NPATA estimates and the RNPATA estimates, some results are consistent while others are not.

Moreover, following Casu et al. (2011), we did not take into accounts of outlier effects at the variable level. We define outliers as any record that is over three standard deviations. However, by observing the data in details, we realized that majority of the variables have outliers. Hence, we re-estimate our models using winsorized data and the results are presented in Table 11, Table 12, and Table 13. After winsorizing, our estimates show that the impact of securitization on bank's credit risk taking behaviour is

no longer statistically significant. Moreover, when we decompose the aggregate securitization and winsorize all the variables, the regression results are broadly inconsistent with the original results. Especially within 2008 to 2010 period, the deviation is substantial. This may be due to the relatively small sample size of each category, as well as the relatively large fluctuation in observations within each category.

Section 7. Limitation of this study

In this study we only examine banks' credit risk taking behavior, our two dependent variables are designed to measure banks' credit risk. However, it is well known that banks in reality expose to multiple types of risks, and our study does not take into account any other risk.

In this study, we assume the lag securitization (along with other lag control variables) will cause the main change in banks' credit risk. However we have to admit that the securitization and credit risk might be jointly determined. For example, on one hand securitization may affect a bank's credit risk, on the other hand, banks with different levels of credit risk may have different incentives to engage in securitization. If that is the case, an alternative estimation method is needed to deal with endogeneity.

As one result of our empirical study, the relationship between securitization and credit risk moves from statistically significant to insignificant when time period moves from 2010-2007 to 2008-2010. Besides the conclusion we draw above, this fact may be

influenced by the relatively small sample size during 2008 to 2010. As shown in Table 2, the number of banks in our sample keeps shrinking over our 10-year horizon; in addition, the during crisis period (2008 to 2010) is shorter compared to pre-crisis period (2001 to 2007), which may also reduce the power of the statistical tests for that period.

In our study, we measure banks' size using the natural log of total assets. An alternative measure for size is market capitalization. During the recent financial crisis, the market capitalization of many banks dropped dramatically. Therefore as a development of this study, one may use the market capitalization to measure the bank size, to see whether the results still hold.

Section 8. Conclusion

Casu et al. (2011) study the relationship between securitization and bank's credit risk taking behavior; they use RWATA as the dependent variable and find a negative and statistically significant relationship, namely, banks with a greater amount of assets securitized are more risk-averse in their activities.

Based on their study, we extend the sample period by three more years to include the financial crisis period. By examining the 100 largest banks in the US over the period 2001 to 2010, we find that using RWATA as a credit risk measurement, there is a positive relationship between securitization and bank's credit risk taking behaviour, and this relationship is statistically significant for period 2001 to 2007. This result is

inconsistent with result reported in Casu et al. (2011). However, when we use NPATA as the dependent variable, we find a negative relationship between securitization and bank's credit risk taking, and this relationship is statistically significant for period 2001 to 2007. After we decompose the aggregate securitization and do regression against each category, we find that various underlying assets have mixed effects of the overall impact of securitization on bank's credit risk taking behaviour, with the Family Residential Loans tend to always contribute the most to the aggregate securitization's impact.

Two interesting conclusions can be drawn from our results. First, the opposite results from two dependent variables tell us that, RWATA and NPATA measure credit risk from different aspects. Moreover NPATA tends to be a more reasonable and efficient measurement for bank's credit risk taking, as it reflects the fact that banks' risk increased during the crisis in Table 3 (whereas according to RWATA there was no significant difference in risk before and during the crisis), moreover it has high and statistically significant correlation with charge-off ratio (we mentioned this point under Section 4). Second, no matter which dependent variable is used, no matter what the coefficient of securitization is, our results show that the impact of securitization indeed change before and during the crisis (both from statistically significant to insignificant), which is in line with our expectation. This demonstrates that securitization's impact on bank's credit risk taking depends on economy condition. Under normal condition securitization may increase banks' credit risk exposure, therefore motivate banks to shift their portfolio to lower risk assets. Investors tend to think more and be reluctant to invest in high-risk financial products when economy is slow down compared with normal

situation. Therefore the influence securitization has on bank's credit risk taking tends to disappear when the economy becomes abnormal and unstable.

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Appendix

Table 1:

Variable	Definition	Construction	Expected Sign
RWATA	risk-weighted assets	Risk-weighted assets / total assets	Dependent variable
NPATA	non-performing assets	Non-performing assets / total assets	Dependent variable
Sec	Securitization	Outstanding securitized assets / total assets	Negative
Size	Bank size	log of total assets	Positive
Loan	Loan ratio	Loans / total assets	Negative
Cap	Capital ratio	Equity / total assets	Negative
ROA	Return on assets	Net income / total assets	Negative
ChOff	Charge-off ratio	Net charge-offs / loans	Negative

Note: This table presents definition, construction, and expected signs on the variables used in this study for the regression of bank credit risk taking. The data are collected from the Federal Reserve's Y-9C reports.

Table 2: Number of banks in our sample by year

Year	Number of banks
2001	100
2002	100
2003	96
2004	83
2005	79
2006	74
2007	68
2008	65
2009	63
2010	61

Table 3. Summary Statistics

	2002-2010			2001-2007			2008-2010			Difference in means		
	N	Mean	Std.Dev	N	Mean	Std.Dev	N	Mean	Std.Dev	(abs)	(%)	p-values
RWAT A	617	0.7201093	0.1938313	439	0.7141687	0.2049068	178	0.7347607	0.1629451	-0.020592	-2.802545101	0.1889
NPA	693	0.0089105	0.0097373	515	0.0063138	0.0055118	178	0.0164234	0.0143558	-0.0101096	-61.55607243	0
Sec	691	0.1211043	0.4264164	513	0.1391097	0.4841666	178	0.0692123	0.1646098	0.0698974	100.989853	0.0048
FamRL	693	0.0852345	0.3971548	515	0.0951546	0.4511412	178	0.0565334	0.1565808	0.0386212	68.31572133	0.0948
HEL	691	0.0027061	0.0149603	513	0.003213	0.0170751	178	0.0012455	0.0051199	0.0019675	157.9686873	0.0203
CrCR	691	0.0258205	0.1418524	513	0.0329909	0.1635574	178	0.0051551	0.1418524	0.0278358	539.966247	0.0002
AutoL	691	0.0013171	0.0060575	513	0.0016857	0.0069507	178	0.0002548	0.0013288	0.0014309	561.577708	0
OtherC	691	0.0027419	0.0170205	513	0.0033546	0.0194425	178	0.0009761	0.0056261	0.0023785	243.6738039	0.0131
Comm nL	691	0.0018314	0.0082669	513	0.00219	0.0091769	178	0.0007981	0.0046221	0.0013918	174.3891743	0.0093
OtherL	691	0.0041713	0.0159037	513	0.0041443	0.0148796	178	0.0042493	0.0185888	-0.000105	-2.470995223	0.9457
Size	693	17.7281300	1.3925690	515	17.62253	1.353472	178	18.03364	1.461393	-0.4111119	-2.279694504	0.0011
Loan	693	0.5943814	0.1763948	515	0.5961566	0.1741937	178	0.5892452	0.1830195	0.0069115	1.172941248	0.6605

Capital	693	0.0919323	0.0320099	515	0.0904422	0.0325733	178	0.0962436	0.0299934	-0.0058014	-6.027829383	0.0303
ROA	693	0.0099171	0.0189258	515	0.0126531	0.0198761	178	0.0020012	0.0129749	0.0106518	532.2706376	0
Choff	690	0.0080415	0.0100520	512	0.0062819	0.0080599	178	0.0131029	0.0130789	-0.006821	-52.05717818	0

Table 4 Correlation matrix
Panel A

	RWATA	NPATA	securitization	size	loan	capital	roa	choff
RWATA	1							
NPATA	0.1161*	1						
securitization	0.0016	0.2429*	1					
size	-0.0207	0.1463*	0.1438*	1				
loan	0.5047*	0.2666*	0.0152	-0.2334*	1			
capital	0.2156*	0.1318*	0.1050*	-0.0432	0.2429*	1		
roa	0.0934*	-0.0167	0.1357	-0.1711*	-0.0553	0.0487	1	
Choff	0.0513	0.6480*	0.1318*	0.2182	0.1142*	0.2343*	-0.2789*	1

Panel B

	RWAT A	NPATA	securi tization	FamRL	HEL	CrCR	Auto L	OtherC ~L	Com mIn~L	Othe rL	size	loan	capit al	roa	cho ff
RW ATA	1														
NPA TA	0.1161 *	1													
secu ritiza tion	0.0016	0.2542 *	1												
Fam RL MBS	-0.0346	0.2556 *	0.944 3*	1											
HEL	-0.0758	0.0989	0.556 4*	0.555 6*	1										
CrC R	0.0980 *	0.0355	0.301 6	0.021 1	-0.027	1									
Auto L	-0.0244	-0.0103	0.006 *	0.010 9	0.0198 *	0.012 7*	1								
Othe rCon L	0.1355 *	0.0267	0.160 9*	0.026 5	0.1737 *	0.457 4*	0.02 77	1							
Com mInd usL	- 0.1479 *	-0.0737	0.071 8*	0.016 3	0.1407	0.099 2*	0.00 38	0.0433 *	1						
Othe rL	0.0418	0.0693	0.037 6	0.007 9	0.0398	0.020 6	0.01 44	0.0133 *	0.000 9	1					
size	-0.0207	0.1516 *	0.126 1*	0.105 *	0.109*	0.032 8*	0.01 59	0.0075	0.144 6	0.31 44	1				

loan	0.5047*	0.246*	0.0089	0.0075	-0.0941	0.0144*	0.032	0.0646	0.2574	0.0243	0.3456	1			
capital	0.2156*	0.1534*	0.0713*	0.0183	-0.1172	0.2985*	0.0287*	0.1492*	0.1833*	0.0104*	0.1165	0.2587*	1		
roa	0.0934*	-0.4382	0.1357	0.0527	0.0323	0.2622	0.029*	0.1044*	0.0069	0.0471	0.0614	0.0853	0.0896	1	
choff	0.0513	0.6864*	0.114*	0.0032	-0.0785	0.3543*	0.046*	0.1117*	0.0434*	0.0223*	0.2182	0.0468*	0.1499*	0.364*	1

Table 5

VARIABLES	Δ RWATA		Δ NPATA	
	(1)	(2)	(3)	(4)
	2001-2007	2008-2010	2001-2007	2008-2010
$SEC_{i,t-1}$	0.00975** (0.00377)	0.145 (0.149)	-0.003*** (0.001)	-0.0159 (0.0152)
$Size_{i,t-1}$	0.0413** (0.0196)	0.0729 (0.0440)	0.002* (0.001)	-0.00256 (0.00449)
$Loan_{i,t-1}$	-0.238*** (0.0625)	-1.095*** (0.263)	0.006* (0.003)	-0.0230* (0.0126)
$Cap_{i,t-1}$	-0.722*** (0.256)	-0.0551 (0.811)	-0.016** (0.008)	-0.0334 (0.0447)
$ROA_{i,t-1}$	0.745 (1.230)	-0.412 (0.780)	0.058 (0.053)	0.0128 (0.145)
$Choff_{i,t-1}$	0.713 (0.984)	0.275 (1.003)	-0.168*** (0.046)	-0.869*** (0.127)
Constant	-0.545 (0.345)	-0.669 (0.837)	-0.027* (0.015)	0.0745 (0.0862)
Obs	393	130	459	130
R^2	0.144	0.423	0.383	0.638
N	85	45	100	45

Note: The table presents the results of two independent regression analysis where the first dependent variable is the change in credit risk of bank portfolio measured as a change in the risk-weighted assets relative to total assets (Δ RWATA) and the second dependent variable is the change in non-performing asset ratio (Δ NPATA). The independent variables are: (i) securitization ratio; (ii) size; (iii) loan ratio; (iv) equity-capital ratio; (v) ROA; and (vi) charge-off ratio (see Table 2 for definitions of the variables and the expected signs). Balance sheet measures used are lagged one year. The columns represent two sample periods of the regression models. Fixed-effects regressions are run for the full sample covering the period from (1) 2001 to 2007; (2) 2001-2010 (not reported); and (3) 2008-2010. Year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at bank level.

Robust standard errors in parentheses:

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 6

RWATA	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008
	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010
FamRL _{<i>i,t-1</i>}	0.00844** (0.00405)	0.154 (0.153)												
HEL _{<i>i,t-1</i>}			-0.397** (0.195)	-5.105** (2.448)										
CrCR _{<i>i,t-1</i>}					-0.110 (0.409)	2.389 (1.895)								
AutoL _{<i>i,t-1</i>}							0.0841 (0.213)	-3.398 (3.231)						
OtherCL _{<i>i,t-1</i>}									1.629** (0.633)	3.432 (5.795)				
C&I L _{<i>i,t-1</i>}											-0.0938 (0.358)	2.012 (2.376)		
OtherL _{<i>i,t-1</i>}													0.0365 (0.113)	-1.760*** (0.578)
Size _{<i>i,t-1</i>}	0.0415** (0.0189)	0.0762* (0.0432)	0.0400** (0.0193)	0.0660 (0.0402)	0.0367* (0.0198)	0.0691 (0.0450)	0.0352* (0.0192)	0.0673 (0.0444)	0.0266 (0.0174)	0.0662 (0.0470)	0.0353* (0.0192)	0.0614 (0.0473)	0.0354* (0.0191)	0.0964** (0.0400)
Loan _{<i>i,t-1</i>}	-0.249*** (0.0625)	-1.094*** (0.262)	-0.246*** (0.0624)	-1.108*** (0.264)	-0.256*** (0.0618)	-1.101*** (0.262)	-0.253*** (0.0632)	-1.108*** (0.266)	-0.262*** (0.0650)	-1.100*** (0.266)	-0.252*** (0.0626)	-1.100*** (0.266)	-0.253*** (0.0628)	-1.084*** (0.257)
Cap _{<i>i,t-1</i>}	-0.716*** (0.253)	-0.0420 (0.810)	-0.721*** (0.256)	-0.0339 (0.794)	-0.679** (0.259)	-0.0365 (0.809)	-0.670** (0.256)	-0.0198 (0.799)	-0.709*** (0.243)	-0.0111 (0.821)	-0.670** (0.256)	-0.0604 (0.798)	-0.670** (0.256)	0.110 (0.786)
ROA _{<i>i,t-1</i>}	0.740 (1.235)	-0.429 (0.772)	0.565 (1.260)	-0.538 (0.791)	0.708 (1.208)	-0.498 (0.806)	0.744 (1.240)	-0.841 (0.970)	1.587 (1.438)	-0.549 (0.821)	0.719 (1.264)	-0.460 (0.806)	0.737 (1.246)	-0.558 (0.787)
Choff _{<i>i,t-1</i>}	0.714 (0.988)	0.285 (1.008)	0.677 (0.960)	0.183 (0.971)	0.693 (0.999)	0.160 (1.020)	0.722 (0.987)	0.0788 (1.013)	1.144 (0.833)	0.186 (1.004)	0.728 (0.980)	0.108 (1.012)	0.724 (0.979)	0.210 (1.020)
Constant	-0.543 (0.335)	-0.728 (0.818)	-0.512 (0.337)	-0.522 (0.773)	-0.452 (0.345)	-0.604 (0.856)	-0.432 (0.337)	-0.549 (0.852)	-0.285 (0.309)	-0.542 (0.899)	-0.434 (0.337)	-0.450 (0.896)	-0.435 (0.336)	-1.097 (0.733)
Obs	395	130	393	130	393	130	393	130	393	130	393	130	393	130
R ²	0.148	0.424	0.144	0.424	0.140	0.425	0.139	0.419	0.155	0.417	0.139	0.417	0.139	0.431
N	85	45	85	45	85	45	85	45	85	45	85	45	85	45

Note: The table presents the results of regressions of bank credit risk taking ($\Delta RWATA$) on securitization activities broken down by the type of assets securitized. Columns 1–14 represent seven specifications of the basic regression model using the following categories of securitized assets: (i) 1-4 Family Residential Loans ; (ii) home equity lines of credit; (iii) credit card receivables; (iv) auto loans; (v) other consumer loans; (vi) C&I, or commercial and industrial loans; and (vii) all other loans and leases. The sample covers periods from 2001 to 2007, from 2001 to 2010 (not reported), and from 2008 to 2010; year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at the bank level.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 7

NPATA	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008
	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010
FamRL _{<i>i,t-1</i>}	-0.00251*** (0.000602)	-0.0140 (0.0141)												
HEL _{<i>i,t-1</i>}			0.0796*** (0.0279)	-0.365 (0.454)										
CrCR _{<i>i,t-1</i>}					-0.00436* (0.00258)	-0.0619 (0.0990)								
AutoL _{<i>i,t-1</i>}							-0.00870 (0.0217)	-1.587*** (0.409)						
OtherCL _{<i>i,t-1</i>}									-0.0502 (0.0334)	-0.586 (0.503)				
C&I L _{<i>i,t-1</i>}											0.0344** (0.0172)	0.323 (0.318)		
OtherL _{<i>i,t-1</i>}													-0.00829 (0.00744)	0.0621 (0.0528)
Size _{<i>i,t-1</i>}	0.00197** (0.000831)	-0.00275 (0.00457)	0.00253** (0.00109)	-0.00202 (0.00416)	0.00285* (0.00170)	-0.00198 (0.00430)	0.00307* (0.00164)	-0.00189 (0.00417)	0.00321* (0.00166)	-0.00175 (0.00446)	0.00314* (0.00164)	-0.00287 (0.00452)	0.00307* (0.00164)	-0.00296 (0.00497)
Loan _{<i>i,t-1</i>}	0.00510 (0.00336)	-0.0231* (0.0126)	0.00857** (0.00429)	-0.0239* (0.0122)	0.0104** (0.00500)	-0.0228* (0.0125)	0.00947* (0.00506)	-0.0289** (0.0121)	0.00990* (0.00516)	-0.0223* (0.0126)	0.00943* (0.00501)	-0.0236* (0.0123)	0.00950* (0.00505)	-0.0234* (0.0125)
Cap _{<i>i,t-1</i>}	-0.0167** (0.00794)	-0.0350 (0.0446)	-0.0170** (0.00850)	-0.0358 (0.0443)	-0.0206* (0.0104)	-0.0357 (0.0445)	-0.0202* (0.0107)	-0.0293 (0.0431)	-0.0199* (0.0104)	-0.0396 (0.0446)	-0.0206* (0.0106)	-0.0401 (0.0452)	-0.0203* (0.0106)	-0.0408 (0.0466)
ROA _{<i>i,t-1</i>}	0.0529 (0.0532)	0.0162 (0.145)	0.0832 (0.0503)	0.0224 (0.146)	0.0728 (0.0514)	0.0236 (0.146)	0.0634 (0.0496)	-0.128 (0.0939)	0.0449 (0.0580)	0.0298 (0.147)	0.0704 (0.0494)	0.0328 (0.149)	0.0644 (0.0497)	0.0256 (0.146)
Choff _{<i>i,t-1</i>}	-0.177*** (0.0478)	-0.868*** (0.128)	-0.176*** (0.0552)	-0.857*** (0.131)	-0.161*** (0.0488)	-0.857*** (0.133)	-0.175*** (0.0495)	-0.900*** (0.128)	-0.179*** (0.0475)	-0.860*** (0.133)	-0.177*** (0.0487)	-0.868*** (0.133)	-0.177*** (0.0497)	-0.859*** (0.133)
Constant	-0.0340** (0.0153)	0.0777 (0.0878)	-0.0471** (0.0207)	0.0647 (0.0795)	-0.0530* (0.0317)	0.0634 (0.0823)	-0.0564* (0.0310)	0.0660 (0.0788)	-0.0588* (0.0313)	0.0596 (0.0850)	-0.0577* (0.0309)	0.0794 (0.0858)	-0.0565* (0.0310)	0.0812 (0.0948)

Obs	461	130	459	130	459	130	459	130	459	130	459	130	459	130
R ²	0.378	0.638	0.348	0.636	0.310	0.635	0.308	0.665	0.311	0.636	0.312	0.636	0.308	0.635
N	100	45	100	45	100	45	100	45	100	45	100	45	100	45

Note: The table presents the results of regressions of bank credit risk taking (Δ NPATA) on securitization activities broken down by the type of assets securitized. Columns 1–14 represent seven specifications of the basic regression model using the following categories of securitized assets: (i) 1-4 Family Residential Loans ; (ii) home equity lines of credit; (iii) credit card receivables; (iv) auto loans; (v) other consumer loans; (vi) C&I, or commercial and industrial loans; and (vii) all other loans and leases. The sample covers periods from 2001 to 2007, from 2001 to 2010 (not reported), and from 2008 to 2010; year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at the bank level.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 8

VARIABLES	Δ RRWATA		Δ RNPATA	
	(1)	(3)	(4)	(6)
	2001-2007	2008-2010	2001-2007	2008-2010
$SEC_{i,t-1}$	0.00603*** (0.00215)	0.0238 (0.0295)	-0.002** (0.001)	0.00632 (0.00409)
$Size_{i,t-1}$	-0.000986 (0.00571)	0.00198 (0.00303)	0.000* (0.000)	0.00134*** (0.000485)
$Loan_{i,t-1}$	-0.119** (0.0469)	-0.0548* (0.0322)	0.002** (0.001)	0.0185*** (0.00311)
$Cap_{i,t-1}$	-0.507** (0.223)	0.241* (0.141)	0.001 (0.005)	-0.00453 (0.0272)
$ROA_{i,t-1}$	0.916 (1.224)	-0.778 (0.571)	0.060** (0.024)	-0.0703 (0.0846)
$Choff_{i,t-1}$	0.457 (0.916)	-0.842 (0.665)	-0.046** (0.022)	-0.345*** (0.114)
Constant	0.111 (0.115)	-0.0413 (0.0629)	-0.003 (0.002)	-0.0261** (0.0105)
Obs	393	130	459	130
N	85	45	100	45

Note: The table presents the results of two independent regression analysis where the first dependent variable is the change in credit risk of bank portfolio measured as a change in the risk-weighted assets relative to total assets (Δ RRWATA) and the second dependent variable is the change in non-performing asset ratio (Δ RNPATA) using random effects regression. The independent variables are: (i) securitization ratio; (ii) size; (iii) loan ratio; (iv) equity-capital ratio; (v) ROA; and (vi) charge-off ratio (see Table 2 for definitions of the variables and the expected signs). Balance sheet measures used are lagged one year. The columns represent two sample periods of the regression models. Fixed-effects regressions are run for the full sample covering the period from (1) 2001 to 2007; (2) 2001-2010 (not reported); and (3) 2008-2010. Year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at bank level.

Robust standard errors in parentheses:

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 9

RRWATA	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008
	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010
FamRL _{<i>i,t-1</i>}	0.00568** (0.00257)	0.0230 (0.0308)												
HEL _{<i>i,t-1</i>}			-0.228 (0.166)	1.189** (0.513)										
CrCR _{<i>i,t-1</i>}					0.00649 (0.0494)	0.0466 (0.0886)								
AutoL _{<i>i,t-1</i>}							0.273 (0.202)	-0.950 (1.931)						
OtherCL _{<i>i,t-1</i>}									0.499* (0.298)	-1.253*** (0.166)				
C&I L _{<i>i,t-1</i>}											-0.200 (0.334)	1.417*** (0.523)		
OtherL _{<i>i,t-1</i>}													0.0377 (0.0997)	0.0677 (0.156)
Size _{<i>i,t-1</i>}	-0.000358 (0.00590)	0.00222 (0.00299)	-0.000804 (0.00577)	0.00225 (0.00284)	-0.00180 (0.00572)	0.00285 (0.00289)	-0.00188 (0.00573)	0.00307 (0.00303)	-0.00245 (0.00552)	0.00381 (0.00286)	-0.00156 (0.00570)	0.00227 (0.00287)	-0.00180 (0.00577)	0.00249 (0.00358)
Loan _{<i>i,t-1</i>}	-0.128*** (0.0475)	-0.0543* (0.0321)	-0.122*** (0.0470)	-0.0461 (0.0310)	-0.125*** (0.0466)	-0.0503 (0.0318)	-0.125*** (0.0467)	-0.0498 (0.0323)	-0.133*** (0.0482)	-0.0439 (0.0308)	-0.125*** (0.0466)	-0.0431 (0.0314)	-0.125*** (0.0468)	-0.0528 (0.0345)
Cap _{<i>i,t-1</i>}	-0.515** (0.222)	0.233* (0.139)	-0.503** (0.222)	0.311** (0.144)	-0.485** (0.224)	0.233* (0.140)	-0.486** (0.223)	0.225* (0.135)	-0.518** (0.214)	0.209 (0.133)	-0.486** (0.221)	0.317** (0.140)	-0.484** (0.222)	0.231* (0.137)
ROA _{<i>i,t-1</i>}	0.906 (1.231)	-0.770 (0.573)	0.862 (1.253)	-0.673 (0.606)	0.930 (1.272)	-0.774 (0.582)	0.938 (1.234)	-0.793 (0.621)	1.114 (1.226)	-0.784 (0.561)	0.901 (1.257)	-0.638 (0.624)	0.938 (1.238)	-0.767 (0.577)
Choff _{<i>i,t-1</i>}	0.466 (0.911)	-0.818 (0.663)	0.444 (0.903)	-0.629 (0.681)	0.456 (0.973)	-0.760 (0.716)	0.461 (0.914)	-0.705 (0.659)	0.522 (0.913)	-0.626 (0.653)	0.486 (0.910)	-0.596 (0.692)	0.476 (0.907)	-0.707 (0.671)
Constant	0.106 (0.118)	-0.0449 (0.0625)	0 (0)	-0.0593 (0.0596)	0.128 (0.116)	-0.0579 (0.0612)	0 (0)	-0.0611 (0.0627)	0.143 (0.112)	-0.0753 (0.0595)	0.124 (0.116)	-0.0625 (0.0608)	0.127 (0.117)	-0.0499 (0.0748)

Obs	395	130	393	130	393	130	393	130	393	130	393	130	393	130
N	85	45	85	45	85	45	85	45	85	45	85	45	85	45

Note: The table presents the results of regressions of bank credit risk taking ($\Delta RRWATA$) using random effects regression on securitization activities broken down by the type of assets securitized. Columns 1–14 represent seven specifications of the basic regression model using the following categories of securitized assets: (i) 1-4 Family Residential Loans ; (ii) home equity lines of credit; (iii) credit card receivables; (iv) auto loans; (v) other consumer loans; (vi) C&I, or commercial and industrial loans; and (vii) all other loans and leases. The sample covers periods from 2001 to 2007, from 2001 to 2010 (not reported), and from 2008 to 2010; year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at the bank level.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 10

RNPATA	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008
	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010
FamRL _{<i>i,t-1</i>}	-0.00233*** (0.000771)	0.00648 (0.00462)												
HEL _{<i>i,t-1</i>}			-0.0278*** (0.00721)	-0.0947 (0.0924)										
CrCR _{<i>i,t-1</i>}					0.00298*** (0.00109)	0.0194 (0.0210)								
AutoL _{<i>i,t-1</i>}							-0.00552 (0.0118)	-1.486*** (0.503)						
OtherCL _{<i>i,t-1</i>}									0.00433 (0.00415)	-0.105** (0.0470)				
C&I L _{<i>i,t-1</i>}											0.0273** (0.0122)	-0.182** (0.0920)		
OtherL _{<i>i,t-1</i>}													-0.00299 (0.00458)	0.0107 (0.0209)
Size _{<i>i,t-1</i>}	0.000234** (0.000109)	0.00140*** (0.000486)	0.000132* (8.00e-05)	0.00164*** (0.000410)	0.000143* (7.56e-05)	0.00157*** (0.000415)	0.000110 (7.31e-05)	0.00186*** (0.000398)	0.000110 (7.28e-05)	0.00166*** (0.000406)	9.45e-05 (6.89e-05)	0.00167*** (0.000414)	0.000120 (7.44e-05)	0.00152*** (0.000490)
Loan _{<i>i,t-1</i>}	0.00210** (0.000849)	0.0186*** (0.00314)	0.00190* (0.00101)	0.0192*** (0.00315)	0.00259** (0.00130)	0.0198*** (0.00309)	0.00221* (0.00122)	0.0212*** (0.00328)	0.00221* (0.00122)	0.0201*** (0.00321)	0.00250** (0.00126)	0.0185*** (0.00321)	0.00223* (0.00123)	0.0192*** (0.00334)
Cap _{<i>i,t-1</i>}	-0.00119 (0.00474)	-0.00648 (0.0274)	-0.000559 (0.00503)	-0.0147 (0.0326)	-0.00386 (0.00514)	-0.00597 (0.0289)	-0.000923 (0.00484)	-0.0122 (0.0270)	-0.00128 (0.00485)	-0.00966 (0.0283)	0.000129 (0.00477)	-0.0197 (0.0337)	-0.000967 (0.00487)	-0.00751 (0.0277)
ROA _{<i>i,t-1</i>}	0.0400* (0.0212)	-0.0686 (0.0844)	0.0271 (0.0265)	-0.0716 (0.0890)	0.000757 (0.0348)	-0.0719 (0.0829)	0.0273 (0.0310)	-0.121* (0.0667)	0.0265 (0.0304)	-0.0671 (0.0875)	0.0266 (0.0300)	-0.0803 (0.0904)	0.0273 (0.0308)	-0.0664 (0.0868)
Choff _{<i>i,t-1</i>}	-0.0719*** (0.0162)	-0.340*** (0.112)	-0.0604*** (0.0170)	-0.318*** (0.114)	-0.0946*** (0.0233)	-0.331** (0.134)	-0.0591*** (0.0194)	-0.297*** (0.115)	-0.0613*** (0.0184)	-0.303** (0.119)	-0.0628*** (0.0189)	-0.326*** (0.114)	-0.0604*** (0.0195)	-0.310*** (0.118)
Constant	-0.00280 (0.00232)	-0.0269** (0.0106)	-0.000863 (0.00175)	-0.0304*** (0.00975)	0 (0)	-0.0305*** (0.00971)	-0.000680 (0.00168)	-0.0355*** (0.00882)	0 (0)	-0.0320*** (0.00917)	0 (0)	-0.0299*** (0.00973)	0 (0)	-0.0293*** (0.0108)

Obs	461	130	459	130	459	130	459	130	459	130	459	130	459	130
N	100	45	100	45	100	45	100	45	100	45	100	45	100	45

Note: The table presents the results of regressions of bank credit risk taking (Δ RNPATA) using random effects regression on securitization activities broken down by the type of assets securitized. Columns 1–14 represent seven specifications of the basic regression model using the following categories of securitized assets: (i) 1-4 Family Residential Loans; (ii) home equity lines of credit; (iii) credit card receivables; (iv) auto loans; (v) other consumer loans; (vi) C&I, or commercial and industrial loans; and (vii) all other loans and leases. The sample covers periods from 2001 to 2007, from 2001 to 2010 (not reported), and from 2008 to 2010; year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at the bank level.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 11

VARIABLES	Δ WRWATA		Δ WNPATA	
	(1)	(2)	(3)	(4)
	2001-2007	2008-2010	2001-2007	2008-2010
$SEC_{i,t-1}$	0.0700 (0.105)	0.0147 (0.311)	-0.003 (0.004)	0.00751 (0.0266)
$Size_{i,t-1}$	0.0318* (0.0183)	0.0724 (0.0507)	0.002** (0.001)	-0.00235 (0.00230)
$Loan_{i,t-1}$	-0.267*** (0.0645)	-1.046*** (0.228)	0.002 (0.003)	-0.0203** (0.00993)
$Cap_{i,t-1}$	-1.031** (0.429)	-0.675 (0.794)	-0.023 (0.014)	-0.0592 (0.0364)
$ROA_{i,t-1}$	0.697 (1.061)	4.126 (2.481)	0.029 (0.048)	0.186 (0.153)
$Choff_{i,t-1}$	1.773** (0.855)	4.412** (1.971)	-0.156*** (0.048)	-0.385*** (0.119)
Constant	-0.337 (0.314)	-0.681 (0.928)	-0.024* (0.013)	0.0649 (0.0456)
Obs	393	130	459	130
R ²	0.145	0.459	0.312	0.467
N	85	45	100	45

Note: The table presents the results using winsoried data of two independent regression analysis where the first dependent variable is the change in credit risk of bank portfolio measured as a change in the risk-weighted assets relative to total assets (Δ WRWATA) and the second dependent variable is the change in non-performing asset ratio (Δ WNPATA). The independent variables are: (i) securitization ratio; (ii) size; (iii) loan ratio; (iv) equity-capital ratio; (v) ROA; and (vi) charge-off ratio (see Table 2 for definitions of the variables and the expected signs). Balance sheet measures used are lagged one year. The columns represent two sample periods of the regression models. Fixed-effects regressions are run for the full sample covering the period from (1) 2001 to 2007; (2) 2001-2010 (not reported); and (3) 2008-2010. Year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at bank level.

Robust standard errors in parentheses:

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 12

WRWATA	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008
	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010
FamRL _{<i>i,t-1</i>}	0.145 (0.125)	0.0136 (0.418)												
HEL _{<i>i,t-1</i>}			2.235 (5.895)	-28.85*** (8.775)										
CrCR _{<i>i,t-1</i>}					-3.449* (2.012)	2.959 (8.873)								
AutoL _{<i>i,t-1</i>}							3.575 (3.088)	1.530 (8.578)						
OtherCL _{<i>i,t-1</i>}									1.538 (9.396)	-67.43 (44.55)				
C&I L _{<i>i,t-1</i>}											-5.529 (22.84)	-59.94 (37.47)		
OtherL _{<i>i,t-1</i>}													-0.456 (1.016)	0.124 (7.602)
Size _{<i>i,t-1</i>}	0.0335* (0.0176)	0.0723 (0.0510)	0.0309* (0.0183)	0.1000* (0.0536)	0.0352* (0.0187)	0.0673 (0.0639)	0.0299 (0.0185)	0.0719 (0.0510)	0.0315* (0.0182)	0.0872 (0.0531)	0.0319* (0.0184)	0.0757 (0.0515)	0.0315* (0.0185)	0.0726 (0.0587)
Loan _{<i>i,t-1</i>}	-0.275*** (0.0645)	-1.046*** (0.228)	-0.270*** (0.0639)	-1.051*** (0.225)	-0.260*** (0.0642)	-1.061*** (0.250)	-0.269*** (0.0637)	-1.046*** (0.228)	-0.271*** (0.0649)	-1.036*** (0.224)	-0.271*** (0.0651)	-1.053*** (0.228)	-0.272*** (0.0635)	-1.045*** (0.237)
Cap _{<i>i,t-1</i>}	-0.992** (0.423)	-0.677 (0.784)	-1.012** (0.427)	-0.525 (0.726)	-1.037** (0.427)	-0.688 (0.783)	-1.036** (0.429)	-0.677 (0.783)	-1.023** (0.428)	-0.605 (0.774)	-1.029** (0.435)	-0.665 (0.784)	-1.017** (0.430)	-0.676 (0.784)
ROA _{<i>i,t-1</i>}	0.727 (1.085)	4.123 (2.477)	0.755 (1.064)	4.019 (2.424)	0.557 (1.018)	4.070 (2.501)	0.648 (1.078)	4.143 (2.466)	0.647 (1.070)	4.021 (2.450)	0.603 (1.080)	4.168* (2.463)	0.644 (1.071)	4.121 (2.531)
Choff _{<i>i,t-1</i>}	1.776** (0.853)	4.410** (1.977)	1.806** (0.857)	4.251** (2.018)	1.855** (0.844)	4.378** (1.998)	1.784** (0.841)	4.423** (1.979)	1.830** (0.853)	4.290** (1.987)	1.816** (0.845)	4.320** (1.992)	1.841** (0.862)	4.423** (2.042)
Constant	-0.366 (0.305)	-0.678 (0.929)	-0.320 (0.313)	-1.175 (0.956)	-0.392 (0.322)	-0.582 (1.196)	-0.298 (0.319)	-0.672 (0.930)	-0.326 (0.313)	-0.948 (0.952)	-0.331 (0.316)	-0.733 (0.936)	-0.324 (0.317)	-0.685 (1.100)

Obs	395	130	393	130	393	130	393	130	393	130	393	130	393	130
R ²	0.151	0.459	0.144	0.481	0.154	0.459	0.146	0.459	0.144	0.465	0.144	0.461	0.144	0.459
N	85	45	85	45	85	45	85	45	85	45	85	45	85	45

Note: The table presents the results using winsorized data of regressions of bank credit risk taking ($\Delta RWATA$) on securitization activities broken down by the type of assets securitized. Columns 1–14 represent seven specifications of the basic regression model using the following categories of securitized assets: (i) 1-4 Family Residential Loans ; (ii) home equity lines of credit; (iii) credit card receivables; (iv) auto loans; (v) other consumer loans; (vi) C&I, or commercial and industrial loans; and (vii) all other loans and leases. The sample covers periods from 2001 to 2007, from 2001 to 2010 (not reported), and from 2008 to 2010; year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at the bank level.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 13

WNPATA	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008	2001	2008
	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010	2007	2010
FamRL _{<i>i,t-1</i>}	0.00768 (0.00593)	-0.0140 (0.0141)												
HEL _{<i>i,t-1</i>}			0.0796*** (0.0279)	-0.365 (0.454)										
CrCR _{<i>i,t-1</i>}					-0.00436* (0.00258)	-0.0619 (0.0990)								
AutoL _{<i>i,t-1</i>}							-0.00870 (0.0217)	-1.587*** (0.409)						
OtherCL _{<i>i,t-1</i>}									-0.0502 (0.0334)	-0.586 (0.503)				
C&I L _{<i>i,t-1</i>}											0.0344** (0.0172)	0.323 (0.318)		
OtherL _{<i>i,t-1</i>}													-0.00829 (0.00744)	0.0621 (0.0528)
Size _{<i>i,t-1</i>}	0.00151** (0.000714)	-0.00275 (0.00457)	0.00253** (0.00109)	-0.00202 (0.00416)	0.00285* (0.00170)	-0.00198 (0.00430)	0.00307* (0.00164)	-0.00189 (0.00417)	0.00321* (0.00166)	-0.00175 (0.00446)	0.00314* (0.00164)	-0.00287 (0.00452)	0.00307* (0.00164)	-0.00296 (0.00497)
Loan _{<i>i,t-1</i>}	0.00260 (0.00282)	-0.0231* (0.0126)	0.00857** (0.00429)	-0.0239* (0.0122)	0.0104** (0.00500)	-0.0228* (0.0125)	0.00947* (0.00506)	-0.0289** (0.0121)	0.00990* (0.00516)	-0.0223* (0.0126)	0.00943* (0.00501)	-0.0236* (0.0123)	0.00950* (0.00505)	-0.0234* (0.0125)
Cap _{<i>i,t-1</i>}	-0.0209 (0.0135)	-0.0350 (0.0446)	-0.0170** (0.00850)	-0.0358 (0.0443)	-0.0206* (0.0104)	-0.0357 (0.0445)	-0.0202* (0.0107)	-0.0293 (0.0431)	-0.0199* (0.0104)	-0.0396 (0.0446)	-0.0206* (0.0106)	-0.0401 (0.0452)	-0.0203* (0.0106)	-0.0408 (0.0466)
ROA _{<i>i,t-1</i>}	0.0289 (0.0482)	0.0162 (0.145)	0.0832 (0.0503)	0.0224 (0.146)	0.0728 (0.0514)	0.0236 (0.146)	0.0634 (0.0496)	-0.128 (0.0939)	0.0449 (0.0580)	0.0298 (0.147)	0.0704 (0.0494)	0.0328 (0.149)	0.0644 (0.0497)	0.0256 (0.146)
Choff _{<i>i,t-1</i>}	-0.160*** (0.0486)	-0.868*** (0.128)	-0.176*** (0.0552)	-0.857*** (0.131)	-0.161*** (0.0488)	-0.857*** (0.133)	-0.175*** (0.0495)	-0.900*** (0.128)	-0.179*** (0.0475)	-0.860*** (0.133)	-0.177*** (0.0487)	-0.868*** (0.133)	-0.177*** (0.0497)	-0.859*** (0.133)
Constant	-0.0241* (0.0132)	0.0777 (0.0878)	-0.0471** (0.0207)	0.0647 (0.0795)	-0.0530* (0.0317)	0.0634 (0.0823)	-0.0564* (0.0310)	0.0660 (0.0788)	-0.0588* (0.0313)	0.0596 (0.0850)	-0.0577* (0.0309)	0.0794 (0.0858)	-0.0565* (0.0310)	0.0812 (0.0948)

Obs	461	130	459	130	459	130	459	130	459	130	459	130	459	130
R ²	0.316	0.638	0.348	0.636	0.310	0.635	0.308	0.665	0.311	0.636	0.312	0.636	0.308	0.635
N	100	45	100	45	100	45	100	45	100	45	100	45	100	45

Note: The table presents the results using winsorized data of regressions of bank credit risk taking (Δ NPATA) on securitization activities broken down by the type of assets securitized. Columns 1–14 represent seven specifications of the basic regression model using the following categories of securitized assets: (i) 1-4 Family Residential Loans ; (ii) home equity lines of credit; (iii) credit card receivables; (iv) auto loans; (v) other consumer loans; (vi) C&I, or commercial and industrial loans; and (vii) all other loans and leases. The sample covers periods from 2001 to 2007, from 2001 to 2010 (not reported), and from 2008 to 2010; year dummies are incorporated in all regressions (not reported). Robust standard errors reported in parentheses are corrected for clustering at the bank level.

***Significance at 1% level.

**Significance at 5% level.

*Significance at 10% level.

Table 14

Variable	FRY-9C Data Item
<i>Balance sheet structure</i>	
Total assets	BHCK2170
Size	LN (BHCK2170)
Loan	BHCK 2122 / BHCK 2170
Equity to capital ratio	BHCK 3210 / BHCK 2170
<i>Loan portfolio composition</i>	
1-4 Family residential loans ratio	BHCKB705/ BHCKB 2170
Home equity lines ratio	BHCKB706/ BHCKB 2170
Credit card receivables ratio	BHCKB707/ BHCKB 2170
Auto loans ratio	BHCKB708/ BHCKB 2170
Other consumer loans ratio	BHCKB709/ BHCKB 2170
Commercial and industrial loans	BHCKB710/ BHCKB 2170
All other loan and leases	BHCKB711/ BHCKB 2170
Securitization ratio	(BHCKB 705+ BHCKB 706+ BHCKB 707+ BHCKB 708+ BHCKB 709+ BHCKB 710+ BHCKB 711)/ BHCKB 2170
<i>Risk characteristics</i>	
NPATA ratio	(BHCK5525+BHCK5526)/BHCK2170
RWATA ratio	BHCKA223/BHCK2170
Charge-off ratio	(BHCK4635-BHCK4605)BHCK3516
<i>Operating performance</i>	
Return on assets	BHCK4340/BHCK3368