

# 盈餘平穩誘因下證券化金融資產與壞帳 之使用

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## 摘要

本研究主旨係探究證券化放款與壞帳之關係。隨著金融資產證券化（簡稱證券化）於銀行業的快速發展，美國財務會計準則第 140 號(FASB 2000)以控制權觀念與財務要素法(control-and-financial-components approach)規範證券化資產除列的會計處理，成為企業管理者從事盈餘平穩化的管道。然而，考量以證券化活動進行盈餘管理的負面經濟後果，銀行業的最大應計項目-壞帳，則為管理者採行的另一項策略性工具。本研究提供證券化活動與壞帳間可能存在互補關係的證據，其中，證券化的實質交易可為企業管理者於壞帳之外進行盈餘平穩的工具。同時，本研究亦針對公允價值會計之財務資訊品質提供初步驗證的發現：當公允價值成為金融資產與負債的衡量依據，企業管理者以證券化數量及資產除列利得進行盈餘管理的行為將對會計盈餘品質產生不利影響，此不利影響可能經由金融商品公允價值的估計而發生。

**關鍵詞：**盈餘平穩化、證券化資產、壞帳

收稿日：2009 年 8 月

接受日：2011 年 12 月

五審後接受

# Evidence of Income Smoothing from Securitized Loans and Loan Loss Provisions: Real Transactions vs. Accruals<sup>\*</sup>

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## **Abstract**

The purpose of this study is to investigate the relationship between the use of securitized loans and loan loss provisions. As the development of financial asset securitizations (securitizations) is increasing in banking industry, loan transfers under control-and-financial-components approach prescribed by Statement of Financial Accounting Standards (SFAS) No. 140 (FASB 2000) have become available for managers to smooth income. However, banks have to face negative consequences from real transactions of securitizations. To achieve smoothing objective, loan loss provisions, as the largest accruals in banking industry, may have been used by managers strategically with securitizations. This study provides evidence on the complementary relationship between securitizations and loan loss provisions and contributes to the line of earnings management research in identifying a specific real transaction, securitizations, available for banks to manage earnings. In addition, findings of this study have implications for the quality of financial reporting under fair value accounting. The use of real transactions to meet earnings target through volume and gains of securitizations raises issues on the quality of accounting earnings as financial instruments are measured at fair value. Attention should be called to unreliable estimates arising from fair value measurements.

**Keywords:** *Income smoothing, Securitized loans, Loan loss provisions.*

Submitted August 2009  
Accepted December 2011  
After 5 rounds of review

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<sup>\*</sup> The financial support of the National Science Council, Taiwan, Republic of China (NSC97-2628-H-305-004-MY2) is gratefully acknowledged.

## 1. INTRODUCTION

The financial crisis emerged in the U.S. since 2007 has spread over the world and led to a slowdown in the global economy. The origin of the crisis can trace to the subprime mortgage crisis which began with falling interest rate in 1990s. Rising home prices, along with low interest rates since 2000 further encouraged banks to make subprime lending to homeowners with poor credit ratings. Beyond the subprime mortgages is the practice of asset securitizations (hereafter securitizations). Traditionally, banks have financed their loans through the deposits they receive from their customers. However, securitizations provide banks with a financing channel by pooling, repackaging, and transferring their loans to the special purpose entity (*SPE*) which borrows funds through the issuance of securities, i.e., mortgage-backed securities (*MBS*) and asset-backed securities (*ABS*), to purchase banks' loans. In view of the dramatically expanding market and advantages over traditional financing model, banks have faced with the decision on whether or not to securitize.<sup>1</sup> Among the advantages offered by securitizations, enhanced income becomes one of important considerations for bank management.

**TABLE 1 Issuance in the U.S. Bond Markets (\$ Billions)<sup>a</sup>**

Year	2001	2002	2003	2004	2005	2006	2007
<b>Mortgage-Related<sup>b</sup></b>	1,671	2,249	3,071	1,779	1,967	1,988	2,050
% of Securitization Markets	83.6	85.7	86.9	73.2	72.3	72.5	80.1
<b>Asset-Backed</b>	326	374	462	652	754	754	510
% of Securitization Markets	16.3	14.3	13.1	26.8	27.7	27.5	19.9
<b>Total Securitizations</b>	1,998	2,623	3,533	2,431	2,720	2,742	2,560
% of Bond Markets	45.6	50.2	52.7	54.9	51.4	47.9	44.1

a. Sources: Securities Industry and Financial Markets Association (SIFMA).

b. Includes GNMA, FNMA, and FHLMC mortgage-backed securities and *CMOs* and private-label *MBS/CMOs*.

Although the development of securitization markets began in 1970, the first research on securitization issues by Greenbaum and Thakor (1987) emerged in late 1980s. Following Greenbaum and Thakor's (1987) work investigating firms' funding decision between securitizations and deposits, studies began focusing on incentives of the securitizer-originator (S-O) and offered different explanations for the use of securitizations until Enron collapse.<sup>2</sup> Accounting issues relating to off-balance-sheet activities including securitizations and special purpose entities have been brought to regulators' attention due to Enron's accounting crisis. Specifically, assets transferred in securitization transactions

<sup>1</sup> For discussion on firms' motives of securitizations, please see Greenbaum and Thakor (1987), Donahoo and Shaffer (1991), Wolfe (2000), Iacobucci and Winter (2003), Calomiris and Mason (2004), Schipper and Yohn (2007), and Chen and Liu (2011a).

<sup>2</sup> A securitizer can be a loan originator or a firm that purchases loans from originators.

are derecognized by S-Os based on a control concept adopted by Statement of Financial Accounting Standards (SFAS) No. 140 (FASB 2000), *Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities*, in 2000.<sup>3</sup> The control concept applying to a securitization transaction prescribes the division of transferred financial assets into a variety of components and considers a transaction a sale as the transferor surrenders control over transferred assets. For control over transferred assets being considered to be surrendered by the transferor, all of the three conditions should be met: (1) The transferred assets have been isolated from the transferor, (2) Each transferee has the right to pledge or exchange the assets (or beneficial interests) it received, and no condition both constrains the transferee (or holder) from taking advantage of its right to pledge or exchange and provides more than a trivial benefit to the transferor, and (3) The transferor does not maintain effective control over the transferred assets through either an agreement that both entitles and obligates the transferor to repurchase or redeem them before their maturity or the ability to unilaterally cause the holder to return specific assets, other than through a cleanup call (par. 9, SFAS 140 (FASB 2000)). Stated another way, transferred financial assets are divided into two components, retained and sold. The retained and sold components represent the economic resources retained and transferred, respectively, by the S-O in a securitization transaction. When a transfer of financial assets is accounted for as a sale, book values of the components might be recognized by allocating the original carrying amount of transferred assets between the assets retained and sold based on their relative fair values at the date of transfer. Securitization gains, thus, are determined by the difference between cash proceeds and the book values of sold components.

Under the control-and-financial-component approach, concern over earnings management through gains from securitization arises. Despite that banks decide volume of securitized loans primarily based on their economic needs before transactions are completed, reported gains can be inflated by securitizing more than the optimal volume given the risk profile of the bank. As securitization volume increases, more retained interest can be created, thus, increasing the amounts of reported gains. Moreover, market value estimation of retained interests is another alternative to inflate gains from securitization, even after completion of the transaction. Because fair value measurement of retained interests is determined based on reporting entity's own assumptions about the assumptions that market participants would use in pricing the asset or liability and on the best information available in the circumstances, which might include the reporting entity's own data (par. 30, SFAS 157 (FASB 2006)), the unobservable inputs in determining fair

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<sup>3</sup> With enhanced disclosure requirement, SFAS 140 (FASB 2000) carries over most of SFAS 125 (FASB 1996) measurement provisions prescribed in 1996.

value of retained interests fall within the fair value hierarchy of Level 3 with the least reliability in valuation. Through S-Os' subjective estimates, when they inflate fair value of retained interests, gains from securitization accounted for as a sale increase as well.

In consideration of potentially negative impact on S-Os' underlying risk and deteriorated quality of earnings involved for volume and fair value assumptions management, respectively, discretion over accruals without cash flows consequence becomes an alternative available for managers to achieve earnings target. In contrast to the discretionary components of all accruals examined by prior earnings management studies, loan loss provisions (*LLP*) are a single and the largest accrual for most banks and justified as a primary device in managing earnings by banks.<sup>4</sup> Among other motives such as political costs, debt covenant constraint, and capital management, income smoothing through *LLP* has received considerable attention from regulatory agencies and academics (McNichols and Wilson 1988; DeFond and Park 1997; Ahmed, Takeda and Thomas 1999; Kanagaretnam, Lobo and Mathieu 2003; Kanagaretnam, Lobo and Yang 2004; Kanagaretnam, Lobo and Yang 2005). Given control of other motives that might provide plausible explanations for cross-sectional differences in the level of *LLP*, the availability of smoothing mechanism for banks engaging in securitizations indicated by prior research may have an important impact on the level of *LLP* (Shakespeare 2002; Karaoglu 2005; Dechow, Myers and Shakespeare 2008). Consequently, this study addresses how bank managers make income smoothing decision on the use of securitizations and *LLP*.

This study contributes to the line of earnings management studies in the following aspects. First, by extending Chen and Liu's (2011a) findings that banks engaging in securitizations are motivated in part by transaction gains and Karaoglu's (2005) evidence on the discretionary part of securitization gains, this study provides evidence of the possible use of securitizations and *LLP* as complements to accomplish managers' objective of income smoothing. Thus, earnings target may be strategically achieved by different mechanisms rather than through a specific means of earnings management. Although specificity on banks may limit the generality of empirical results to other industry, focus on banks' loan securitizations in this study will increase the power of the tests in the homogeneity of the sample and unique characteristics of securitization data in banking industry. Second, this study differs from prior research with mixed results on the use between specific transactions and discretionary accounting estimates for income smoothing objective (Scholes, Wilson and Wolfson 1990; Kanagaretnam et al. 2003) in identifying a specific real transaction, securitizations, available for banks to manage earnings. Although banks may face negative consequences from the use of most real transactions, managers

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<sup>4</sup> Focusing on a specific industry and a specific accrual item can avoid the weaknesses of models based on total accruals (McNichols 2000).

can manage earnings through securitizations even after completion of transactions given the optimal level of economic needs. Moreover, accounting estimates without cash flows effect can be used sequentially as a complement. Third, findings of this study have implications for the quality of financial reporting. Without a violation of accounting standards, the use of real transactions to meet earnings target through volume and gains of securitizations raises issues on the quality of accounting earnings as fair value accounting becomes dominant over historical cost principle. Hence, attention should be received for the application of fair value accounting for unreliable estimates and measurements of fair values of financial instruments with no active market.

The rest of the paper proceeds as follows. Section 2 briefly reviews related literature and develops hypotheses. Section 3 describes empirical models, data, and descriptive statistics. Section 4 reports the empirical results and additional analyses. Section 5 concludes the findings.

## **2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

Concern on earnings management of gains from securitization is raised by a number of previous studies. Shakespeare's (2002) work investigates whether the potential for unreliable fair value estimates of retained interests leads to earnings management within the context of accounting for an asset securitization. Although empirical results reveal limited evidence on earnings management through the volume securitized, findings are consistent with firms managing gains to meet earnings target after controlling for volume of securitizations. Similar to sales of available-for-sale financial instruments, managers can time financial assets sales and securitizations to affect earnings. Karaoglu's (2005) study reveals that the realized gains from securitizations can be attributed not only to cherry-picking of appreciated loans relative to the historical costs, but also to the biased valuations of retained interests in the case of securitizations. Further, the degree of financial reporting discretion is positively associated with the use of loan transfers for financial statement management. As a result, managers use biased discretion in the timing and the selection of loans through valuation of retained interests in an opportunistic manner to achieve earnings management objectives. Niu and Richardson (2006), in a returns and earnings association framework, find that the pricing multiple for securitization gains declines as the amount of off-balance-sheet debt increases, thus, suggesting that investors take off-balance-sheet liabilities into account when assessing the value-relevance of gains on sale of securitized assets. Firms with higher levels of off-balance-sheet risk are more likely to be frequent securitizers and concerned about their reputation with SPE investors. Consequently, as implicit recourse is not accounted for when calculating gain on securitizations of frequent securitizers, gains from securitization would have lower

valuation-relevance, especially as volume of securitizations increases. Finally, Dechow and Shakespeare (2009) investigate whether the accounting treatment for securitizations provides managers with incentives to arrange their securitization transactions toward the end of the quarter to maximize the accounting benefits. Their findings indicate that securitization transactions take place with greater frequency in the last month of the quarter and in the last few days of the quarter. The clustering of transactions at quarter-ends is significantly stronger after the release of SFAS 125 (FASB 1996) that made the gain on sale treatment easier to obtain. Evidence presented by Feng, Gramlich and Gupta (2009) that SPV activity increases with financial reporting incentives being associated with earnings management further supports incomplete disclosures of SPV.

## 2.1 VOLUME MANAGEMENT HYPOTHESES

Because managers' decision on whether or not to securitize is partly driven by accounting-based factors (Schipper and Yohn 2007), gains on securitized loans, among others, become an important reason for managers' decision (Chen and Liu 2011a). Moreover, securitization gains are employed by managers to achieve their income smoothing objective (Shakespeare 2002; Karaoglu 2005). To accomplish earnings target through securitization gains, two ways in general are available: volume and gain management.

For volume management, the underpinning is that increase in volume creates more retained interest, thus, increasing the potential amounts of reported gains. However, any change in volume of securitizations for earnings management objective may result in negative economic consequences, such as substantially high legal and banking costs involved in transaction arrangement (Chen and Liu 2011a). Moreover, as firms' (total or priced) risk profile may worsen due to the retained interest from credit enhancement (Chen, Liu and Ryan 2008; Chen and Liu 2011b), managers' earnings objective is not completely accomplished through volume management of securitizations because change in volume involving cash flows consequence becomes seemingly value decreasing activities. Accordingly, managers may consider other mechanisms as alternatives without any cash flows consequence, such as *LLP*.

*LLP*, as the largest accrual item, has significant impacts on earnings and regulatory capital. Prior research suggests the following motives for management's discretionary behavior with respect to *LLP*: income smoothing (McNichols and Wilson 1988; DeFond and Park 1997; Ahmed et al. 1999; Kanagaretnam et al. 2003; Kanagaretnam et al. 2004; Kanagaretnam et al. 2005), reduced cost of capital (Kanagaretnam et al. 2003), and capital management (Ahmed et al. 1999). Among other incentives, income smoothing through *LLP* has caused much debate on whether managers' discretion over accrual is beneficial to sound banking. Prior literature provides alternative views about why managers engage in

income smoothing (Wahlen 1994; Beatty, Chamberlain and Magliolo 1995; Liu, Ryan and Wahlen 1997; Ahmed et al. 1999; Lobo and Yang 2001; Kanagaretnam et al. 2004; Kanagaretnam et al. 2005). One is to signal for information enhancement. As information asymmetry is reduced by smoothing income, reported earnings are more reflective of future performance. An alternative view is to circumvent contracts designed to mitigate agency costs. Income smoothing arising from managers' opportunistic motives, however, makes reported earnings less reflective of future performance.

Above empirical analyses in managers' income smoothing behavior, motivated either by signaling or opportunistic reasons, imply the relationship between securitizations and *LLP* as alternative means for bank managers to smooth income. As securitizations and *LLP* become alternative mechanisms of smoothing income, a sequential relationship on bank managers' use between these two alternatives is further implied: securitizations followed by *LLP*. The notion of this sequential relation is that even securitizations are partly driven by enhancing income, managers' earnings objective may not be surely achieved through volume management due to the time-consuming process involved in transactions. As the objective of income smoothing is not accomplished by securitizations, *LLP* may follow as an alternative. Accordingly, this study posits the following volume management hypothesis that volume of securitizations has an important impact on *LLP*, particularly for its discretionary part. However, a non-directional proposition for the relationship between securitizations and discretionary loan loss provisions (*DLLP*) is posited since this relationship depends on whether bank managers seek to offset or reinforce effect of securitizations on net income by using *DLLP*. For offsetting effect, a positive relation between securitizations and *DLLP* is expected. For reinforcing effect, a negative association between both mechanisms is expected. Given the competing hypotheses for managers' use between securitizations and *DLLP* as complements or substitutes, this study posits the following:

**H1: Banks engaging in securitizations are inclined to smooth income through volume of securitized loans and discretionary loan loss provisions sequentially, conditional on premanaged current and future earnings.**

In principle, almost any type of financial assets, such as mortgages, home equity lines, credit card receivables, auto loans, and commercial loans, can be securitized. Among the financial assets, mortgages are the first and most important type of securitized assets by far due to the huge number of these mortgages and their ability to be classified into homogenous groups (Ryan 2007). In addition, mortgage-backed securities (*MBS*) are more liquid, and residual securities from mortgage securitizations are more tradable than their counterparts from other asset securitizations (asset-backed securities, *ABS*) (Karaoglu 2005). It is noted that *MBS* market with 4.1 trillion outstanding at the end of 2001 is more



than doubled at the end of 2007. The size of MBS market is about the same as that of the treasuries and municipal markets combined. Compared to *ABS* market with 2.5 trillion outstanding at the end of 2007, the significantly larger *MBS* market provides more liquidity, thus, more opportunities for banks using volume of mortgage securitizations to meet earnings target (Shakespeare 2002).<sup>5</sup> In contrast, the much smaller size for *ABS* market implies that lesser room can be employed by managers from changes in volume to accomplish earnings target. The different latitude in using volume of securitized loans between mortgages and non-mortgages may affect how transactions are structured. Hence, by dividing total securitized loans into mortgages and non-mortgages and following argument for volume management that relationship between securitized loans and *DLLP* may exist, this study investigates whether this relationship varies by types of securitized loans and proposes the following hypotheses, stated in an alternative form:

**H2: Banks engaging in securitizations are inclined to smooth income through volume of securitized mortgages and discretionary loan loss provisions sequentially, conditional on premanaged current and future earnings.**

**H3: Banks engaging in securitizations are inclined to smooth income through volume of securitized non-mortgages and discretionary loan loss provisions sequentially, conditional on premanaged current and future earnings.**

## 2.2 GAIN MANAGEMENT HYPOTHESIS

In addition to volume management, banks could manage the assumptions underlying fair value of retained interests to arrive at earnings objectives. Compared to volume management, managing fair value assumptions does not have negative consequences on banks' economic reality. As Karaoglu (2005) documents that managers have discretion in the calculation of reported gains, even after the transaction is completed, for smoothing earnings. Under financial-components approach prescribed by SFAS 140(FASB 2000), the book value of securitized assets is allocated between components sold and retained based on their relative fair values. Securitization gains are recognized by the difference between net cash proceeds and the book value of the components sold for a securitization treated as a sale for accounting purposes. The reported gains, thus, increase in market value of retained components which are often based on unwarranted assumptions due to the lack of active market. Despite that aggressively managing fair value assumptions to inflate securitization gains may expose banks to subsequent write-offs of retained interests, thus, adverse market reactions (Shakespeare 2002; Calomiris and Mason 2004; Higgins and Mason 2004; Niu and Richardson 2006), banks may employ assumptions management in a

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<sup>5</sup> Statistics on *MBS* and *ABS* market are obtained from Securities Industry and Financial Markets Association (SIFMA): [www.sifma.org](http://www.sifma.org).

more conservative way without large write-offs in subsequent years to accomplish their smoothing objectives. As conservative assumptions management results in smaller gains from securitization, managers can subsequently use estimates of *LLP* without cash flows consequence to ensure the earnings target. As a result, this study proposes the following gain management hypothesis that inflated gains from securitization through fair value assumptions of retained interests with or without change in volume of securitizations is followed by *DLLP*.

**H4: Banks engaging in securitizations are inclined to smooth income through gains from securitized loans and discretionary loan loss provisions sequentially, conditional on premanaged current and future earnings.**

### 3. RESEARCH METHODOLOGY

#### 3.1 EMPIRICAL MODELS

The following set of equations is employed to investigate bank managers' incentive of income smoothing through securitizations and *DLLP*.

$$\begin{aligned} ABS_{i,t}^{Dummy} = & a_0 + a_1 SIZE_{i,t-1} + a_2 LOAN_{i,t-1} + a_3 DEPOSIT_{i,t-1} + a_4 NCO_{i,t-1} \\ & + a_5 \sigma_{i,t-1}^{eps} + a_6 CR_{i,t-1} + a_7 ABS_{i,t-1}^{Gain} + a_8 FEE_{i,t-1} + a_9 EBTPS_{i,t} \\ & + a_{10} EBTPS_{i,t+1} + \tau_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} DLLP_{i,t} = & b_0 + b_1 ABS_{i,t} + b_2 EBTPS_{i,t} + b_3 EBTPS_{i,t+1} + b_4 SIZE_{i,t} \\ & + b_5 LEV_{i,t} + b_6 ACR_{i,t} + b_7 LLA_{i,t-1} + b_8 NPL_{i,t-1} + b_9 \Delta NPL_{i,t} \\ & + b_{10} MILL_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

where:

$ABS_{i,t}^{Dummy}$  = Dummy variable taking value of 1 for a bank engaging in securitizations during quarter  $t$ , and 0 otherwise.

$DLLP_{i,t}$  = Discretionary loan loss provisions during quarter  $t$  deflated by total assets at the beginning of quarter  $t$ .

$ABS_{i,t}$  = Securitized loans at quarter  $t$  divided by total assets at the beginning of quarter  $t$ .  $ABS$  is measured by the following:<sup>6</sup>

$ABS_{i,t}^{Total}$  : Total securitized loans at quarter  $t$  divided by total assets at the beginning of quarter  $t$ .

$ABS_{i,t}^{Mort}$  : Securitized mortgage loans at quarter  $t$  divided by total assets at the beginning of quarter  $t$ .

$ABS_{i,t}^{Nmort}$  : Securitized non-mortgage loans at quarter  $t$  divided by total

<sup>6</sup> The effect of actual volume of securitized loans on cash flows is not investigated in this study due to their volatility compared to earnings and the lack of reliable methods for estimation of optimal volume in securitizations (Feng et al. 2009).

- assets at the beginning of quarter  $t$ .
- $ABS_{i,t}^{Gain}$  : Gains from securitization during quarter  $t$  divided by total assets at the beginning of quarter  $t$ .
- $EBTPS_{i,t(t+1)}$  = Earnings before tax, provisions, and securitization gains during quarter  $t$  ( $t+1$ ) deflated by total assets at the beginning of quarter  $t$ .
- $SIZE_{i,t}$  = Natural logarithm of total assets at quarter  $t$ .
- $LEV_{i,t}$  = Total liabilities at quarter  $t$  deflated by total assets at the beginning of quarter  $t$ .
- $ACR_{i,t}$  = Ratio of Tier 1 capital before after tax effects of loan loss provisions and securitization gains to total risk-weighted assets at quarter  $t$ .
- $LLA_{i,t-1}$  = Loan loss allowance at quarter ( $t-1$ ) deflated by total assets at the beginning of quarter  $t$ .
- $NPL_{i,t-1}$  = Non-performing loans at quarter ( $t-1$ ) deflated by total assets at the beginning of quarter  $t$ .
- $\Delta NPL_{i,t}$  = Change in non-performing loans during quarter  $t$  deflated by total assets at the beginning of quarter  $t$ .

As specified above, a two-stage least squares (2SLS) model is employed in this study due to concern of self-selection bias. Despite that securitization activities have been developed prosperously over 2000s which are the sample period covered by this study, only limited banks report securitization activities. In consideration of various factors on the magnitude of securitization use (e.g. Greenbaum and Thakor 1987), equation (1) models the decision on securitizations use ( $ABS^{Dummy}$ ) with 1 for securitizing banks and 0 otherwise. After a probit regression is conducted, the inverse Mill's ratio ( $MILL$ ) is obtained by calculating  $\varphi(z_{i,t})/\Phi(z_{i,t})$ , where  $z_{i,t}$ ,  $\varphi$ , and  $\Phi$  stand for the fitted value of the probit regression index function, standard normal density, and normal cumulative probability, respectively.  $MILL$  is added to equation (2) as a control variable to correct for potential self-selection bias (Barton 2001).

Equation (1) ( $ABS^{Dummy}$  equation) is specified for whether or not to securitize decision. As evidenced by Chen and Liu (2011a) that bank securitizations are motivated by economic and accounting-based factors, this study employs Chen and Liu's (2011a) model as the first stage of 2SLS model. Five variables, including  $SIZE$ ,  $LOAN$ ,  $DEPOSIT$ ,  $NCO$ , and  $\sigma^{eps}$  in  $ABS^{Dummy}$  equation are proxies for economic factors. Size effect measured as the natural logarithm of total assets ( $SIZE$ ) is employed since larger banks with scale economics are more likely to engage in securitizations for the substantially high costs. Total loans ( $LOAN$ ) are a measure of banks' comparative advantage in securitizing and servicing loans for the presence and experience of banks with high loan portfolio. Total deposits ( $DEPOSIT$ ) measure banks' need to increase liquidity. Net charge-offs ( $NCO$ ) are used to control for banks' incentive to obtain lower cost of funds. Moreover, standard deviation of EPS ( $\sigma^{eps}$ ) is a proxy for bank risk. In addition,  $CR$ ,  $ABS^{Gain}$ ,  $FEE$ , and  $EBTPS$  are used to proxy for accounting-based motives. Tier 1 risk-based capital ratio ( $CR$ ) is a

measure of managers' incentive to manage regulatory capital. Securitization gains ( $ABS^{Gain}$ ), servicing fee ( $FEE$ ), and earnings before tax, provisions, and securitization gains ( $EBTPS$ ) stand for banks' earnings management motives.

Equation (2) ( $DLLP$  equation) is a  $DLLP$  incentive model. Variables included in  $DLLP$  equation are explained as follows.

### (1) Discretionary Loan Loss Provisions ( $DLLP$ )

To estimate  $DLLP$ , the dependent variable of equation (2), a model (equation (3)) based on a balance sheet perspective developed by McNichols and Wilson (1988) is adopted due to the unobservable feature of the extent of managers' discretion on loan loss provisions. All independent variables in equation (3) including beginning loan loss allowance ( $LLA_{t-1}$ ), current and one-quarter-ahead net charge-offs ( $NCO_{i,t}$  and  $NCO_{i,t+1}$ ) are accounted for the non-discretionary component of  $LLP$ . Regression residuals, thus, capturing the discretionary portion of  $LLP$  are employed as the dependent variable in equation (2).

$$LLP_{i,t} = c_0 + c_1LLA_{i,t-1} + c_2NCO_{i,t} + c_3NCO_{i,t+1} + \mu_{i,t} \quad (3)$$

where:

$LLP_{i,t}$  = Loan loss provisions during quarter  $t$  deflated by interest income during quarter  $t$ .

$LLA_{i,t-1}$  = Loan loss allowance at quarter ( $t-1$ ) deflated by interest income during quarter  $t$ .

$NCO_{i,t}$  = Net charge-offs during quarter  $t$  deflated by interest income during quarter  $t$ .

$NCO_{i,t+1}$  = Net charge-offs during quarter ( $t+1$ ) deflated by interest income during quarter  $t$ .

### (2) Income Smoothing Incentive

To smooth income, real transactions and accruals would be undertaken alternatively by bank managers. However, due to the economic consequences involved in real transactions, smoothing objective may be achieved through securitizations followed strategically by  $DLLP$  to minimize negative impacts with regard to managers' behavior of securitization use. To accomplish earnings target, managers would decrease securitizations by volume or gains followed by  $DLLP$  adjustment when premanaged current earnings ( $EBTPS_t$ ) are high given expected future earnings ( $EBTPS_{t+1}$ ), or increase securitizations by volume or gains followed by discretionary portion of  $LLP$  when premanaged current earnings ( $EBTPS_t$ ) are low in anticipation of future earnings ( $EBTPS_{t+1}$ ). Thus, controlling for premanaged current and future earnings, a non-directional relationship between volume of securitized loans ( $ABS^{Total}$ ) and  $DLLP$  is predicted for H1. By classifying securitized loans ( $ABS^{Total}$ ) into mortgages ( $ABS^{Mort}$ ) and non-mortgages ( $ABS^{Nmort}$ ) based on the

different latitude of market liquidity, this study proposes H2 for a non-directional association between  $ABS^{Mort}$  and  $DLLP$  and H3 for that between  $ABS^{Nmort}$  and  $DLLP$ . Furthermore, total securitized loans ( $ABS^{Total}$ ) are replaced with securitization gains ( $ABS^{Gain}$ ) in consideration of management through fair value assumptions of retained interests and a non-directional impact of gains from transferred loans on  $DLLP$  is posited for H4.

### (3) Other Earnings Management Incentives

In addition to income smoothing, other earnings management incentives including political costs ( $SIZE$ ), covenant constraint ( $LEV$ ), and capital adequacy ( $ACR$ ) in using discretionary loan loss provisions are controlled in  $DLLP$  equation.

Large firms are more politically visible and subject to regulation. Thus, politically visible firms have incentives to report lower profits by exercising discretion over accounting estimates with no cash flows consequence to avoid the scrutiny of regulators. In contrast, large firms have less private information and less likely to use signaling devices such as  $LLP$  to communicate their private information (DeFond and Park 1997; Kanagaretnam et al. 2003; Kanagaretnam et al. 2005). Given the competing arguments between political cost and signaling, this study posits that bank size ( $SIZE$ ) measured as natural logarithm of total assets is associated with  $DLLP$  without an expected direction.

A firm with a higher leverage ratio is more likely to be constrained by debt covenants (DeFond and Park 1997). The tighter the covenant constraint, the greater the probability of a covenant violation and of incurring costs from technical default. Therefore, a firm with a higher leverage ratio is more likely to select accounting estimates increasing net income to relax debt constraints and reduce default costs.  $LEV$ , a proxy of covenant constraint, is employed to control for banks' capital structure.

For banks with lower capital ratios, the incentive of increasing their capital adequacy exists due to regulatory capital costs from the violation of capital requirement. However, the incentive of using loan loss provisions to increase capital ratios has decreased since 1990 change in capital adequacy regulations because loan loss allowance is no longer considered part of Tier 1, but is included in Tier 2 instead. Despite the reduced incentive in using  $LLP$  for Tier 1 capital ratio especially, this study includes an adjusted Tier 1 capital ratio ( $ACR$ ) by adding back the after tax effects of loan loss provisions and securitization gains to control for managers' capital management incentive with regard to managers' discretionary behavior on loan loss provisions.<sup>7</sup> A negative relation between  $ACR$  and

<sup>7</sup> In contrast to Tier 2 capital with many debt-like instruments, Tier 1 capital contains the core capital including common stock and surplus, retained earnings, qualifying perpetual preferred stock and surplus, thus, providing the most important buffer for bank's risk-taking operations in the next period (Huang, Liu and Ryan 2005; Chen and Liu 2011a).

*DLLP* is predicted (Moyer 1990; Beatty et al. 1995; Ahmed et al. 1999; Kanagaretnam et al. 2004; Kanagaretnam et al. 2005).<sup>8</sup>

#### (4) Economic Considerations

For economic reasons, a number of variables, beginning balance of loan loss allowance ( $LLA_{t-1}$ ), beginning non-performing loan ( $NPL_{t-1}$ ), and change in non-performing loans ( $\Delta NPL$ ) related to loan loss provisions are identified as follows.

Regulators assess the adequacy of banks' allowances for loan losses. Since a higher level of beginning loan loss allowance will require a smaller provision in the current period (Wahlen 1994; Wetmore and Brick 1994; Kanagaretnam et al. 2003; Kanagaretnam et al. 2004; Kanagaretnam et al. 2005), beginning loan loss allowance ( $LLA_{t-1}$ ) as a control variable is predicted to have a negative effect on *DLLP*.

Beginning non-performing loans ( $NPL_{t-1}$ ) and change in non-performing loans ( $\Delta NPL$ ), as the bank-specific leading indicators of potential future loan losses, should precede or coincide with provisions. Following prior research (Wahlen 1994; Ahmed et al. 1999; Kanagaretnam et al. 2003; Kanagaretnam et al. 2004; Kanagaretnam et al. 2005), this study predicts that beginning *NPL* and  $\Delta NPL$  are positively associated with *DLLP*.

### 3.2 SAMPLE AND DESCRIPTIVE STATISTICS

The quarterly securitization information in this study is collected from the regulatory Y-9C reports on the Federal Reserve Bank of Chicago's website for banks with total consolidated assets of \$150 million or more. Securitization activities are disclosed in schedule HC-S, Servicing, Securitization and Asset Sale Activities, a supporting schedule of the consolidated balance sheet. The initial sample of this study includes all bank holding companies from the second quarter of 2001 (when schedule HC-S first became available) to the fourth quarter of 2007. All bank holding companies are further matched with quarterly Bank *COMPUSTAT* database. After deleting observations with missing values during the sample period, a final sample consisting of 8040 bank-quarter observations is gathered. Of these 8040 observations, approximately 15% are securitizing. By conducting a two-stage model to control for self-selection bias, a sample of 1204 bank-quarter observations with outstanding securitized loans is obtained for empirical analyses. This study overcomes the data limitation on annual reports regarding disclosure of securitizations by extracting detailed information from bank's regulatory financial statements, including primary variables of total securitizations ( $ABS^{Total}$ ), mortgage securitizations ( $ABS^{Mort}$ ), non-mortgage securitizations ( $ABS^{Nmort}$ ), securitization gains ( $ABS^{Gain}$ ) and other independent variables for  $ABS^{Dummy}$  and *DLLP* equations, such as Tier

<sup>8</sup> Increasing *LLP* increases loan loss allowance by an equal amount but decreases stockholders' equity by one minus the tax rate times the increase in *LLP*. Thus, the net effect is an increase in capital ratio.

1 capital ratio ( $CR$ ,  $ACR$ ), size ( $SIZE$ ), total liabilities ( $LEV$ ), total loans ( $LOAN$ ), total deposits ( $DEPOSIT$ ), servicing fee ( $FEE$ ), net charge-offs ( $NCO$ ), loan loss allowance ( $LLA$ ), nonperforming loans ( $NPL$  and  $\Delta NPL$ ), and earnings before tax, provisions, and securitization gains ( $EBTPS$ ), and loan loss provisions ( $LLP$ ). Only earnings per share ( $EPS$ ) is gathered from bank *COMPUSTAT* for variability of earnings ( $\sigma^{eps}$ ) to proxy for bank risk.

TABLE 2 presents descriptive statistics of all variables for  $ABS^{Dummy}$  model. Panel A of TABLE 2 shows that the mean value of  $SIZE$  (21.48) is larger than median (21.05), suggesting that size is skewed to large banks. The minimum level of Tier 1 capital ratio ( $CR$ ) is 4.13, indicating that manager's less incentive to maintain a required minimum level of 4% for an adequately-capitalized bank. The mean ratio (12.01) of  $CR$  further suggests that banks, on average, maintain Tier 1 capital far above regulatory requirement. By separating sample into two subgroups in accordance with whether or not a bank is involved in securitizations, Panel B and Panel C present the different characteristics between non-securitizing and securitizing observations as follows. For non-securitizing group, the mean values of  $SIZE$  (21.12) and  $\sigma^{eps}$  (0.07) are smaller than those (23.56 and 0.12) for securitizers. In contrast, the mean values of  $LOAN$  (0.66),  $DEPOSIT$  (0.76), and  $CR$  (12.31) for non-securitizing group are larger than those (0.62, 0.67, and 10.30) for securitizing banks. The differences between  $SIZE$ ,  $\sigma^{eps}$ ,  $LOAN$ ,  $DEPOSIT$ , and  $CR$  reveal their potential impact on bank securitization decision.

**TABLE 2 Description Statistics**

<b>Panel A: Full Sample (N=8040) for <math>ABS^{Dummy}</math> Equation</b>							
Variable	Mean	SD	Min	Q1	Median	Q3	Max
$SIZE_{t-1}$	21.4823	1.6515	18.8799	20.2930	21.0540	22.2880	28.4289
$LOAN_{t-1}$	0.6584	0.1337	0.0121	0.5970	0.6779	0.7441	0.9445
$DEPOSIT_{t-1}$	0.7484	0.1064	0.0003	0.6913	0.7673	0.8237	0.9339
$NCO_{t-1}$	0.0005	0.0009	-0.0053	0.0001	0.0002	0.0006	0.0272
$\sigma_{i,t-1}^{eps}$	0.0813	0.1364	0.0000	0.0253	0.0441	0.0884	4.1095
$CR_{t-1}$	12.0058	3.4648	4.1300	10.0300	11.3400	13.0400	58.2600
$ABS_{i,t-1}^{Gain}$	0.0001	0.0011	-0.0027	0.0000	0.0000	0.0000	0.0311
$FEE_{t-1}$	0.0001	0.0006	-0.0203	0.0000	0.0000	0.0001	0.0141
$EBTPS_t$	0.0048	0.0022	-0.0204	0.0036	0.0047	0.0058	0.0738
$EBTPS_{t+1}$	0.0048	0.0026	-0.0790	0.0037	0.0048	0.0060	0.0722

TABLE 2 Description Statistics (Continued)

Panel B: Non-Securitizing Group (N=6836)							
Variable	Mean	SD	Min	Q1	Median	Q3	Max
$SIZE_{t-1}$	21.1158	1.2303	18.8799	20.2340	20.8680	21.7670	27.0378
$LOAN_{t-1}$	0.6647	0.1305	0.0121	0.6025	0.6804	0.7496	0.9445
$DEPOSIT_{t-1}$	0.7619	0.0991	0.0003	0.7138	0.7783	0.8290	0.9339
$NCO_{t-1}$	0.0004	0.0009	-0.0053	0.0000	0.0002	0.0005	0.0272
$\sigma_{i,t-1}^{eps}$	0.0741	0.1034	0.0000	0.0245	0.0421	0.0822	2.7832
$CR_{t-1}$	12.3062	3.5141	4.1300	10.2800	11.5200	13.2700	58.2600
$ABS_{i,t-1}^{Gain}$	0.0000	0.0001	-0.0008	0.0000	0.0000	0.0000	0.0062
$FEE_{t-1}$	0.0001	0.0002	-0.0030	0.0000	0.0000	0.0000	0.0043
$EBTPS_t$	0.0047	0.0022	-0.0204	0.0036	0.0046	0.0057	0.0738
$EBTPS_{t+1}$	0.0047	0.0026	-0.0790	0.0036	0.0047	0.0059	0.0722
Panel C: Securitizing Group for DLLP Equation (N=1204)							
Variable	Mean	SD	Min	Q1	Median	Q3	Max
$SIZE_{t-1}$	23.5630	2.1283	19.1515	22.1970	23.5890	25.0650	28.4289
$LOAN_{t-1}$	0.6227	0.1458	0.0481	0.5538	0.6643	0.7176	0.9059
$DEPOSIT_{t-1}$	0.6718	0.1136	0.3300	0.6041	0.6684	0.7568	0.9294
$NCO_{t-1}$	0.0008	0.0009	-0.0012	0.0002	0.0005	0.0010	0.0109
$\sigma_{i,t-1}^{eps}$	0.1225	0.2482	0.0000	0.0311	0.0609	0.1324	4.1095
$CR_{t-1}$	10.3005	2.5763	6.4300	8.3050	9.7750	11.5950	21.9100
$ABS_{i,t-1}^{Gain}$	0.0004	0.0028	-0.0027	0.0000	0.0000	0.0000	0.0311
$FEE_{t-1}$	0.0003	0.0015	-0.0203	0.0000	0.0001	0.0003	0.0141
$DLLP_t$	0.0612	0.0700	-0.1521	0.0219	0.0483	0.0786	0.7395
$ABS_{i,t}^{Total}$	0.1024	0.2219	0.0000	0.0083	0.0295	0.1138	1.8193
$ABS_{i,t}^{Mort}$	0.0591	0.1324	0.0000	0.0000	0.0049	0.0500	1.3342
$ABS_{i,t-1}^{Nmort}$	0.0433	0.1860	0.0000	0.0000	0.0068	0.0297	1.8193
$ABS_{i,t}^{Gain}$	0.0004	0.0028	-0.0031	0.0000	0.0000	0.0000	0.0328
$EBTPS_t$	0.0053	0.0024	-0.0130	0.0041	0.0053	0.0064	0.0262
$EBTPS_{t+1}$	0.0053	0.0026	-0.0183	0.0041	0.0054	0.0065	0.0286
$SIZE_t$	23.5885	2.1290	19.1515	22.2300	23.6060	25.0750	28.4889
$LEV_t$	0.9301	0.0629	0.6545	0.9016	0.9228	0.9480	1.8829
$ACR_t$	10.4134	2.4785	5.5580	8.4668	9.9159	11.7530	20.8592
$LLA_{t-1}$	0.0089	0.0032	0.0002	0.0071	0.0086	0.0103	0.0243
$NPL_{t-1}$	0.0126	0.0080	0.0000	0.0070	0.0109	0.0166	0.0475
$\Delta NPL_t$	0.0003	0.0031	-0.0255	-0.0009	0.0001	0.0013	0.0234

<sup>a</sup> Variables for  $ABS^{Dummy}$  equation are defined as follows:  $ABS^{Dummy}$  = Dummy variable taking one for securitizers, and zero otherwise;  $SIZE$  = Natural logarithm of total assets;  $LOAN$  = Total loans;  $DEPOSIT$  = Total deposits;  $NCO$  = Net charge-offs;  $\sigma^{eps}$  = Standard deviation of  $EPS$ ;  $CR$  = Tier 1 capital ratio;  $ABS^{Gain}$  = Securitization gains deflated by total assets;  $FEE$  = Servicing fee deflated by total assets;  $EBTPS$  = Earnings before tax, provisions, and securitization gains.

<sup>b</sup> Variables for  $DLLP$  equation are defined as follows:  $DLLP$  = Discretionary loan loss provisions;  $ABS^{Total}$  = Total securitized loans;  $ABS^{Mort}$  = Securitized mortgage loans;  $ABS^{Nmort}$  = Securitized non-mortgage loans;  $ABS^{Gain}$  = Securitization gains;  $LEV$  = Total liabilities;  $ACR$  = Adjusted Tier 1 capital ratio;  $LLA$  = Loan loss allowance;  $NPL$  = Nonperforming loans;  $\Delta NPL$  = Change in nonperforming loans;  $MILL$  = Inverse Mill's ratio.

<sup>c</sup> All level variables in equations (1) and (2) are deflated by beginning total assets at quarter  $t$ .



Additionally, Panel C of TABLE 2 reveals descriptive statistics of variables for *DLLP* equation. The mean and median ratios of discretionary loan loss provisions to the beginning total assets (*DLLP*) are 6.12% and 4.83%, respectively. The large proportion of *DLLP* to earnings before tax, provisions, and securitization gains (*EBTPS*) in terms of mean values (0.0612 vs. 0.0053) reveals a relatively important impact of loan loss provisions on earnings. The mean (minimum) of adjusted Tier 1 capital ratio (*ACR*) is 10.41 (5.56), suggesting that sample banks, on average, are well capitalized.

TABLE 3 presents Pearson and Spearman correlation matrix for variables in *DLLP* equation. Pearson correlations (below diagonal) reveal that  $ABS^{Total}$ ,  $ABS^{Nmort}$ , and  $ABS^{Gain}$  are positively related with *DLLP* at 1% significance level. Only  $ABS^{Mort}$  is insignificantly associated with *DLLP*. Premanaged current and one-quarter-ahead earnings (*EBTPS*) are negatively related to *DLLP* at 1% and 5% significance level, respectively. In addition, *SIZE*, beginning *LLA*, beginning *NPL*, and  $\Delta NPL$  are significantly and positively correlated, in contrast to a negative association between *LEV* and *DLLP*. Although several pairs of variables are significantly intercorrelated (e.g., *SIZE* vs. beginning *LLA* (-0.085) and *SIZE* vs. *ACR* (-0.550)), values of variance inflation factor (*VIF*) for all variables are below the threshold level of 10, suggesting that multicollinearity may not cause a problem in making inferences in this study. In addition, Spearman correlations (above diagonal) for *ABS* related variables show the similar results to Pearson correlations.

## 4. EMPIRICAL ANALYSES

### 4.1 TEST RESULTS FOR OVERALL SAMPLE

TABLE 4-1 presents overall test results for the two-stage model employed in this study to investigate managers' income smoothing incentive through management of securitization volume and gains. For  $ABS^{Dummy}$  equation explaining bank managers' decision on whether or not to securitize, results show that deposit ratio (*DEPOSIT*,  $t=-1.78$ ) and regulatory capital ratio (*CR*,  $t=-4.42$ ) are significantly and negatively related with dichotomous securitization decision. In addition, bank size (*SIZE*,  $t=23.29$ ), net charge-offs (*NCO*,  $t=4.60$ ), securitization gains ( $ABS^{Gain}$ ,  $t=3.84$ ), and servicing fee (*FEE*,  $t=3.67$ ) are positively associated with securitization decision at 1% significance level. Consistent with Chen and Liu (2011a), these findings indicate that banks engaging in securitizations are driven by not only accounting-based motivations (*CR*,  $ABS^{Gain}$ , and *FEE*) but also economic motivations (*SIZE*, *DEPOSIT*, and *NCO*).

#### Volume Management Hypotheses

For the second stage of 2SLS model investigating managers' income smoothing incentive in *DLLP*, column H1 in TABLE 4-1 reports results for volume management of total securitized loans by controlling for current and future earnings before tax, loan loss

provisions, and securitization gains (*EBTPS*). The insignificantly positive association between  $ABS^{Total}$  and  $DLLP$  ( $t=1.64$ ) does not support H1. This insignificantly positive relation seems to imply that the complementary use of the two devices does not exist (Kanagaretnam et al. 2003). However, since total securitized loans consist of mortgages and non-mortgages, the insignificant relation between  $ABS^{Total}$  and  $DLLP$  needs further analyses. For other explanatory variables, beginning  $NPL$  ( $t=3.46$ ) and  $\Delta NPL$  ( $t=5.75$ ) have positive impacts on  $DLLP$ . In addition,  $SIZE$  ( $t=-4.30$ ),  $ACR$  ( $t=-1.50$ ), and beginning  $LLA$  ( $t=-3.72$ ) are negatively associated with  $DLLP$  as predicted.

To test H2 and H3,  $ABS^{Total}$  in  $DLLP$  equation is replaced with the  $ABS^{Mort}$  and  $ABS^{Nmort}$ . It is noted that column H2 & H3 in TABLE 4-1 indicates that coefficient of  $ABS^{Mort}$  is not significant ( $t=-1.35$ ), but that of  $ABS^{Nmort}$  is positive ( $t=3.82$ ) at 1% significance level. Thus, use of securitized non-mortgage loans dominates that of mortgage securitizations. These findings suggest that the limited degree of liquidity in  $ABS$  market doesn't affect managers' discretionary behavior by using types of securitized loans before  $DLLP$ . Scholes et al.'s (1990) argument that offsetting effect exists between realized gains and losses and  $LLP$  given income smoothing objective is supported by H3 in this study. As to control variables, results are generally similar to those for total volume hypothesis ( $ABS^{Total}$ ) as reported in column H1.<sup>9</sup>

#### Gain Management Hypothesis

For gain management hypothesis, column H4 in TABLE 4-1 reveals that  $ABS^{Gain}$  ( $t=4.36$ ) is significantly and positively associated with  $DLLP$ , suggesting that securitization gains and  $DLLP$  are sequentially related as expected. It further implies that complementary relationship between  $ABS^{Gain}$  and  $DLLP$  can be created through fair value estimates of retained interests even after the completion of securitization transactions. Thus, this finding, supporting H4, is consistent with Karaoglu's (2005) findings on the availability of discretion over gains used to manage earnings. For control variables,  $SIZE_t$ ,  $ACR_t$ , beginning  $LLA$ , beginning  $NPL$ , and  $\Delta NPL$ , results are similar to those for volume management hypotheses.

<sup>9</sup> Following Chen et al. (2008), non-mortgages ( $ABS^{Nmort}$ ) are further separated into two sub-categories, consumer and commercial loans ( $ABS^{Cons}$  and  $ABS^{Comm}$ ) based on types of securitized loans. The result (unreported) suggests that the complementary relation between non-mortgages ( $ABS^{Nmort}$ ) and  $DLLP$  is driven primarily by consumer loans ( $ABS^{Cons}$ ).

TABLE 3 (Pearson\ Spearman) Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) $DLLP_t$	1.000	0.198**	0.053	0.179**	0.227**	0.107**	0.100**	0.261**	0.010	-0.110**	0.378**	0.464**	0.041
(2) $ABS_{i,t}^{Total}$	0.409**	1.000	0.627**	0.444**	0.300**	-0.020	-0.012	0.214**	-0.121**	-0.155**	0.087**	0.232**	-0.021
(3) $ABS_{i,t}^{Mort}$	0.024	0.548**	1.000	-0.210**	-0.014	0.050	0.064*	0.050	0.013	-0.054	-0.041	0.145**	0.002
(4) $ABS_{i,t}^{Mort}$	0.471**	0.803**	-0.058*	1.000	0.523**	0.066*	0.056	0.461**	-0.087**	-0.355**	0.049	-0.005	-0.011
(5) $ABS_{i,t}^{Gain}$	0.467**	0.790**	-0.031	0.965**	1.000	0.050	0.061*	0.423**	-0.056	-0.278**	-0.029	0.005	0.003
(6) $EBTPS_t$	-0.099**	-0.233**	0.058*	-0.319**	-0.359**	1.000	0.801**	0.288**	-0.003	-0.273**	0.301**	0.005	-0.004
(7) $EBTPS_{t+1}$	-0.066*	-0.195**	0.071*	-0.284**	-0.288**	0.495**	1.000	0.271**	0.004	-0.281**	0.300**	-0.013	-0.018
(8) $SIZE_t$	0.210**	0.180**	0.121**	0.128**	0.082**	0.197**	0.167**	1.000	0.026	-0.599**	-0.055	-0.024	0.014
(9) $LEV_t$	-0.120**	-0.161**	0.000	-0.193**	-0.197**	0.068*	0.116**	0.035	1.000	-0.075**	-0.155**	-0.192**	0.145**
(10) $ACR_t$	-0.008	0.133**	-0.080**	0.216**	0.219**	-0.253**	-0.243**	-0.550**	-0.140**	1.000	-0.023	0.028	-0.039
(11) $LLA_{t-1}$	0.385**	0.295**	0.007	0.348**	0.326**	0.064*	0.082**	-0.085**	-0.175**	0.024	1.000	0.480**	-0.035
(12) $NPL_{t-1}$	0.345**	0.178**	0.139**	0.114**	0.111**	-0.046	-0.062*	-0.060*	-0.153**	0.151**	0.436**	1.000	-0.084**
(13) $ANPL_t$	0.057*	0.017	0.007	0.015	0.027	0.019	0.001	0.016	0.191**	-0.027	-0.054	-0.112**	1.000

a. \*\* and \* indicate significance level at the 1% and 5%, respectively (2-tailed).

b. Variables are as defined in TABLE 2.

TABLE 4-1 Overall Test Results for Two-Stage Least Squares (2SLS) Model

Variable	Pred. Sign	$ABS^{Dummy}$	Discretionary Loan Loss Provisions ( $DLLP$ )		
			H1	H2 & H3	H4
Intercept	?	-9.151 *** (-16.44)	0.284 *** (4.38)	0.218 *** (3.38)	0.205 *** (3.16)
$ABS_{i,t}^{Total}$	+/-		0.012 (1.64)		
$ABS_{i,t}^{Mort}$	+/-			-0.013 (-1.35)	
$ABS_{i,t}^{Nmort}$	+/-			0.040 *** (3.82)	
$ABS_{i,t}^{NGain}$	+/-				2.920 *** (4.36)
$SIZE_{t-1}$	+	0.400 *** (23.29)			
$LOAN_{t-1}$	+	-0.084 (-0.45)			
$DEPOSIT_{t-1}$	-	-0.398 ** (-1.78)			
$NCO_{t-1}$	+	95.716 *** (4.60)			
$\sigma_{i,t-1}^{eps}$	+	0.076 (0.60)			
$CR_{t-1}$	-	-0.043 *** (-4.42)			
$ABS_{i,t-1}^{NGain}$	+	395.465 *** (3.84)			
$FEE_{t-1}$	+	107.441 *** (3.67)			
$EBTPS_t$	+/-	3.441 (0.35)	-0.980 * (-1.46)	-0.452 (-0.68)	-0.214 (-0.32)
$EBTPS_{t+1}$	+/-	9.281 (1.04)	-0.206 (-0.34)	0.182 (0.30)	0.118 (0.20)
$SIZE_t$	+/-		-0.010 *** (-4.30)	-0.008 *** (-3.16)	-0.007 *** (-3.00)
$LEV_t$	+		0.018 (0.82)	0.016 (0.73)	0.018 (0.83)
$ACR_t$	-		-0.001 * (-1.50)	-0.002 *** (-2.81)	-0.002 *** (-2.85)
$LLA_{t-1}$	-		-1.833 *** (-3.72)	-2.416 *** (-4.74)	-2.389 *** (-4.78)
$NPL_{t-1}$	+		0.618 *** (3.46)	0.795 *** (4.32)	0.756 *** (4.18)
$\Delta NPL_t$	+		2.365 *** (5.75)	2.273 *** (5.46)	2.203 *** (5.29)
$MILL_t$	+/-		-0.030 *** (-3.84)	-0.018 ** (-2.18)	-0.016 ** (-2.03)
N of Obs.		8040	1204	1204	1204
Log-Likelihood		-2372.512			
Adjusted $R^2$			0.054	0.064	0.067
F-value			7.84	8.49	9.62

<sup>a</sup> T-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance level at 1%, 5%, and 10%, respectively.

<sup>b</sup> Variables are as defined in TABLE 2.

## 4.2 TEST RESULTS FOR CLASSIFIED SUBSAMPLES

To further ascertain managers' incentive in the use of securitizations and *DLLP* for income smoothing objective, overall sample is classified based on banks' propensity to smooth income. By extending Kanagaretnam et al.'s (2003) analyses, this study investigates whether the relation between securitizations and *DLLP* is affected by bank managers' concern on their job security. In particular, banks with poor current performance will use both securitizations and *DLLP* to increase current earnings. A complementary use in both mechanisms is expected in low premanaged current earnings context. In contrast, banks with good current earnings will use either securitization gains or *DLLP*. In other words, securitizations and *DLLP* act as substitutes for banks with high current earnings. To capture managers' propensity to smooth income, a cross-sectional earnings target based on premanaged current earnings (earnings before taxes, provisions, and securitization gains deflated by beginning total assets, *EBTPS*) is selected (Barth, Beaver and Wolfson 1990; Clinch and Magliolo 1993; Beatty et al. 1995). By dividing overall sample into four quartiles, the first and fourth quartiles represent banks with low and high current premanaged earnings compared to banks in the second and third quartiles with moderate premanaged current earnings. The separation of banks with greater incentives to smooth income in the low and high premanaged current earnings levels (the first and fourth quartiles, respectively) from banks in the moderate level of premanaged current earnings groups (the second and third quartiles) can provide further evidence on the complementary use between securitizations and *DLLP* found in overall sample reported in section 4.1. Results for subsamples with low and high current performance (hereafter *LCP* and *HCP* subsamples, respectively) are reported in TABLE 4-2-1 and 4-2-2, respectively.

### Volume Management Hypotheses

TABLE 4-2-1 reports results for *LCP* subsample with greater incentives to increase premanaged current earnings. Columns H1 and H2 & H3 indicate that  $ABS^{Total}$ ,  $ABS^{Mort}$ , and  $ABS^{Nmort}$  are insignificantly associated with *DLLP*. In addition, for *HCP* subsample in TABLE 4-2-2, securitization volume variables ( $ABS^{Total}$ ,  $ABS^{Mort}$ , and  $ABS^{Nmort}$ ) have similar effects on *DLLP* to those for *LCP* subsample. In general, volume management hypotheses that banks with poor current performance intend to use securitization volume with *DLLP* as complements are not supported by findings from classified subsamples although evidence on securitizations and *DLLP* acting as substitutes for banks with good current performance is also not found for *HCP* subsample.

### Gain Management Hypothesis

For gain management hypothesis, column H4 in TABLE 4-2-1 indicates that managers of *LCP* subsample have greater incentives to manage securitization gains ( $ABS^{Gain}$ ,  $t=1.79$ ) as a complement of *DLLP*. In contrast, TABLE 4-2-2 shows no

incentives of managers for *HCP* subsample to manage gains from securitization ( $ABS^{Gain}$ ,  $t=1.6$ ) as a substitute of *DLLP*. These results are consistent with Kanagaretnam et al. (2003) that when bank managers face the threat of dismissal because of poor current earnings, *DLLP* and alternative mechanisms are employed as complements to smooth earnings.

**TABLE 4-2-1 Tests Results of the Second-Stage Model for Cross-Sectional Low Current Performance (*LCP*) Subsample**

Variable	Pred. Sign	Discretionary Loan Loss Provisions ( <i>DLLP</i> )		
		H1	H2 & H3	H4
Intercept	?	0.383 ** (2.26)	0.343 ** (2.04)	0.298 * (1.78)
$ABS_{i,t}^{Total}$	+/-	0.014 (0.85)		
$ABS_{i,t}^{Mort}$	+/-		-0.017 (-0.58)	
$ABS_{i,t}^{Nmort}$	+/-		0.026 (1.35)	
$ABS_{i,t}^{Gain}$	+/-			1.941 * (1.79)
$SIZE_t$	+/-	-0.015 ** (-2.44)	-0.014 ** (-2.15)	-0.012 ** (-1.96)
$LEV_t$	+	0.074 (1.15)	0.073 (1.13)	0.079 (1.24)
$ACR_t$	-	-0.003 ** (-2.01)	-0.004 *** (-2.34)	-0.004 *** (-2.51)
$LLA_{t-1}$	-	-0.527 (-0.42)	-0.963 (-0.75)	-0.824 (-0.68)
$NPL_{t-1}$	+	0.686 ** (1.77)	0.748 ** (1.90)	0.746 ** (1.91)
$\Delta NPL_t$	+	1.996 *** (2.66)	1.987 *** (2.62)	1.915 *** (2.51)
$MILL_t$	+/-	-0.047 ** (-2.37)	-0.039 * (-1.91)	-0.035 * (-1.76)
N of Obs.		300	300	300
Adjusted $R^2$		0.096	0.098	0.104
<i>F</i> -value		4.98	4.63	5.36

<sup>a</sup> T-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance level at 1%, 5%, and 10%, respectively.

<sup>b</sup> Variables are as defined in TABLE 2.

Given above discussion, use of securitization volume, especially non-mortgage loans, is considered with *DLLP* by bank managers to smooth income. Empirical results further imply that in addition to using volume of securitizations, unreliable estimates of fair values of retained interests are an available device to complement *DLLP*. The positive coefficients on securitized non-mortgages ( $ABS^{Nmort}$ ) and gains from securitizations ( $ABS^{Gain}$ ) support the argument that *DLLP* may be used strategically to smooth the level of income by offsetting the income effect of securitizations.<sup>10, 11</sup>

**TABLE 4-2-2 Tests Results for the Second-Stage Model for Cross-Sectional High Current Performance (*HCP*) Subsample**

Variable	Pred. Sign	Discretionary Loan Loss Provisions ( <i>DLLP</i> )		
		H1	H2 & H3	H4
Intercept	?	0.259 ** (2.32)	0.259 ** (2.32)	0.234 ** (2.12)
$ABS_{i,t}^{Total}$	+/-	-0.002 (-0.10)		
$ABS_{i,t}^{Mort}$	+/-		-0.001 (-0.07)	
$ABS_{i,t}^{Nmort}$	+/-		-0.012 (-0.13)	
$ABS_{i,t}^{Gain}$	+/-			16.490 (1.60)
$SIZE_t$	+/-	-0.008 * (-1.95)	-0.008 * (-1.95)	-0.007 * (-1.79)
$LEV_t$	+	-0.021 (-0.59)	-0.021 (-0.58)	-0.017 (-0.48)
$ACR_t$	-	-0.002 (-1.18)	-0.002 (-1.12)	-0.002 * (-1.28)
$LLA_{t-1}$	-	-1.859 ** (-1.71)	-1.890 ** (-1.69)	-1.881 ** (-1.74)
$NPL_{t-1}$	+	1.047 ** (2.22)	1.053 ** (2.21)	1.052 ** (2.25)
$\Delta NPL_t$	+	1.886 ** (1.87)	1.894 ** (1.88)	1.734 ** (1.72)
$MILL_t$	+/-	-0.018 (-1.24)	-0.018 (-1.25)	-0.014 (-0.92)
N of Obs.		298	298	298
Adjusted $R^2$		0.019	0.016	0.028
F-value		1.73	1.54	2.05

<sup>a</sup> T-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance level at 1%, 5%, and 10%, respectively.

<sup>b</sup> Variables are as defined in TABLE 2.

<sup>10</sup> Three dummy variables ( $Q_2$ ,  $Q_3$ , and  $Q_4$  standing for the second, third, and fourth quarter) are added to equation (2) for robustness tests. Results (unreported) for all variables are very similar to the primary findings in this section. Among these dummy variables, only  $Q_4$  is positively related with *DLLP* at 10% significance level (Liu et al. 1997).

<sup>11</sup> To rule out the possibility that the relation between *DLLP* and securitized activities might be induced by banks cherry picking their loan portfolios (e.g., Greenbaum and Thakor 1987), this study has performed simultaneous equations models with selectivity. Results (unreported) indicate that *DLLP* and securitization activities (volume or gains) are not determined simultaneously.

### 4.3 ADDITIONAL TESTS

The following tests are used to investigate whether above results are sensitive to alternative research designs.

#### 4.3.1 Classifying Overall Sample Based on Time-Series Earnings Target

To further ascertain bank managers' use of securitizations and *DLLP* in different earnings context, a time-series target measured by one-quarter-ahead change in premanaged earnings is selected as an alternative classification basis in contrast to the cross-sectional target used in section 4.2. On the basis of time-series earnings target, research sample is divided into two groups, positive and negative changes. A poor-good performance (*PGP*) subsample, thus, is obtained for observations with higher positive values of one-quarter-ahead change in premanaged earnings by halving positive change group. Similar to the process of identifying *PGP* subsample, a good-poor performance (*GPP*) subsample is selected by halving negative change group for observations with more negative values of one-quarter-ahead change in premanaged earnings. Panel A in TABLE 5 reports managers' incentive to use securitizations and *DLLP* as complements for *PGP* subsample. It is noted that findings on  $ABS^{Total}$  ( $t=3.12$ ),  $ABS^{Mort}$  ( $t=-0.18$ ),  $ABS^{Nmort}$  ( $t=4.43$ ), and  $ABS^{Gain}$  ( $t=4.99$ ) are in general consistent with and even more significant than those in section 4.2 for low-current performance (*LCP*) subsample on the classification basis of cross-sectional earnings target, thus, supporting argument proposed by Kanagaretnam et al. (2003) that when bank managers face the threat of dismissal because of poor current performance, *DLLP* and available devices are used to increase current earnings for job security concern. Panel B in TABLE 5, however, indicates the complementary use between securitizations and *DLLP* for *GPP* subsample. A comparison of results between *PGP* and *GPP* subsamples further reveals the differential degree of the complementary use of both mechanisms. For *GPP* group, less complementary relation is evidenced by 4.6-cent increase in *DLLP*, relative to 6.5-cent increase for *PGP* group, for each \$1 of increase in volume of  $ABS^{Nmort}$ . Similar result is also found from the smaller value of coefficient on  $ABS^{Gain}$  for *GPP* group than that for *PGP* group (3.580 vs. 4.247). Above results imply that securitizations and *DLLP* are strategically used by managers to smooth reported income as complements, however, with differential degree when managers face job security concern.

#### 4.3.2 Replacing Discretionary Loan Loss Provisions with Total Loan Loss Provisions

To alleviate potential measurement errors from the model of estimating discretionary portion of loan loss provisions, this study reexamines volume and gain management hypotheses by replacing the dependent variable, discretionary loan loss provisions (*DLLP*), with total loan loss provisions (*TLLP*). Results presented in TABLE 6 show that coefficients on  $ABS^{Total}$  ( $t=8.61$ ),  $ABS^{Nmort}$  ( $t=13.59$ ), and  $ABS^{Gain}$  ( $t=14.69$ ) are all positive



at 1% significance level as predicted and the positive coefficient on  $ABS^{Mort}$  ( $t=0.86$ ) is insignificant. Moreover, findings for  $LCP$  subsample classified by cross-sectional earnings targets are more significant than those for classified subsamples under  $DLLP$  equation in section 4.2. Similar results can be found for  $HCP$  subsamples under  $TLLP$  and  $DLLP$  equations.

**TABLE 5 Test Results for the Second-Stage Model for Subsamples Classified by Time-Series Earnings Target**

Variable	Pred. Sign	Discretionary Loan Loss Provisions ( $DLLP$ )		
		H1	H2 & H3	H4
<b>Panel A: Time-Series Poor-Good Performance (PGP) Banks (n=355)</b>				
$ABS_{i,t}^{Total}$	+/-	0.037 *** (3.12)		
$ABS_{i,t}^{Mort}$	+/-		-0.003 (-0.18)	
$ABS_{i,t}^{Nmort}$	+/-		0.065 *** (4.43)	
$ABS_{i,t}^{Gain}$	+/-			4.247 *** (4.99)
Adjusted $R^2$		0.064	0.086	0.101
$F$ -value		4.05	4.71	5.96
<b>Panel B: Time-Series Good-Poor Performance (GPP) Banks (n=248)</b>				
$ABS_{i,t}^{Total}$	+/-	0.026 (1.31)		
$ABS_{i,t}^{Mort}$	+/-		-0.048 (-1.15)	
$ABS_{i,t}^{Nmort}$	+/-		0.046 ** (2.11)	
$ABS_{i,t}^{Gain}$	+/-			3.580 ** (2.37)
Adjusted $R^2$		0.076	0.088	0.091
$F$ -value		3.55	3.63	4.07

<sup>a</sup>. T-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance level at 1%, 5%, and 10%, respectively.

<sup>b</sup>. Variables are as defined in TABLE 2.

## 4.3.3 Adding Loan Sales into the Second Stage of 2SLS Model

After a comparison of securitizations with loan sales, Karaoglu (2005) suggests that earnings management motivations exist in the calculation of securitizations. To clarify that the significantly positive association between securitization volume ( $ABS^{Total}$ ,  $ABS^{Mort}$ , and  $ABS^{Nmort}$ ) or gains ( $ABS^{Gain}$ ) and loan loss provisions ( $LLP$ ) is not driven by a mechanical result through overstating or understating loan loss provisions after banks select loans for securitizations, this study adds two variables, volume of loan sales ( $LOAN^{Sale}$ ) and loan gains ( $LOAN^{Gain}$ ) into the second stage of 2SLS model in TABLE 4-1 to TABLE 6. The (untabulated) results reveal no significant evidence on the association between  $LOAN^{Sale}$  or  $LOAN^{Gain}$  and DLLP (for primary findings). For additional tests, although a significantly positive coefficient on  $LOAN^{Gain}$  may be found in *PGA* group (classified by time-series earnings target), or *TLLP* model, value on  $LOAN^{Sale}$  is lower than that on  $ABS^{Sale}$ . Generally, these findings provide further evidence on the possibility of earnings management by banks through securitizations.

**TABLE 6 Additional Tests:  
Replacing Discretionary Loan Loss Provisions (*DLLP*) with Total Loan Loss Provisions (*TLLP*)**

Variable	Pred. Sign	Total Loan Loss Provisions ( <i>TLLP</i> )		
		H1	H2 & H3	H4
<b>Panel A: Overall Sample (n=1204)</b>				
$ABS_{i,t}^{Total}$	+/-	0.001 *** (8.61)		
$ABS_{i,t}^{Mort}$	+/-		0.000 (0.86)	
$ABS_{i,t}^{Nmort}$	+/-		0.003 *** (13.59)	
$ABS_{i,t}^{Gain}$	+/-			0.183 *** (14.69)
Adjusted $R^2$		0.433	0.476	0.486
<i>F</i> -value		93.02	100.27	114.65
<b>Panel B: Cross-Sectional Low-Current Performance (<i>LCP</i>) Banks (n=300)</b>				
$ABS_{i,t}^{Total}$	+/-	0.002 *** (4.76)		
$ABS_{i,t}^{Mort}$	+/-		0.001 (0.96)	
$ABS_{i,t}^{Nmort}$	+/-		0.002 *** (5.34)	
$ABS_{i,t}^{Gain}$	+/-			0.131 *** (5.73)
Adjusted $R^2$		0.613	0.619	0.626
<i>F</i> -value		60.09	55.03	63.55

**TABLE 6 Additional Tests:  
Replacing Discretionary Loan Loss Provisions (*DLLP*) with Total Loan Loss  
Provisions (*TLLP*) (Continued)**

Variable	Pred. Sign	Total Loan Loss Provisions ( <i>TLLP</i> )		
		H1	H2 & H3	H4
<b>Panel C: Cross-Sectional High-Current Performance (<i>HCP</i>) Banks (n=298)</b>				
$ABS_{i,t}^{Total}$	+/-	0.000 (0.11)		
$ABS_{i,t}^{Mort}$	+/-		0.000 (0.04)	
$ABS_{i,t}^{Nmort}$	+/-		0.000 (0.30)	
$ABS_{i,t}^{Gain}$	+/-			0.490 *** (2.94)
Adjusted $R^2$		0.262	0.259	0.282
<i>F</i> -value		14.15	12.55	15.60

<sup>a</sup>. T-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance level at 1%, 5%, and 10%, respectively.

<sup>b</sup>. Variables are as defined in TABLE 2.

#### 4.3.4 Replacing Current *ABS* Levels with Lagged *ABS* Values

Discussion in section 4.1 for volume and gain management hypotheses is based on a sequential use between volume and gains of securitizations and *DLLP*. To analyze the assumption of sequential use that managers employ securitizations at the beginning of the quarter and *DLLP* at the end of the quarter in order to reduce income volatility, this study reestimates *DLLP* equation by replacing current levels of  $ABS^{Total}$ ,  $ABS^{Mort}$ ,  $ABS^{Nmort}$ ,  $ABS^{Gain}$ , and *MILL* with their respective lagged values. Results reported in TABLE 7 show that positive coefficients of lagged *ABS* variables, including  $ABS^{Total}$ ,  $ABS^{Mort}$ ,  $ABS^{Nmort}$ , and  $ABS^{Gain}$ , are consistent with arguments for a sequential use between securitizations and *DLLP*. The coefficients on current levels of  $ABS^{Total}$  (0.012),  $ABS^{Mort}$  (-0.013),  $ABS^{Nmort}$  (0.040), and  $ABS^{Gain}$  (2.920) in TABLE 4-1 are close to those on lagged values (0.017, -0.011, 0.045, and 3.391, respectively) in TABLE 7 at similar significance level except that lagged  $ABS^{Total}$  becomes more significantly related with *DLLP*. These additional tests provide further evidence on managers' sequential use between securitizations and *DLLP* as complements.

#### 4.3.5 Managing Gains from Securitizations by Fair Value Assumptions Only

To assess whether bank managers use only fair value assumptions underlying retained interests from securitizations to smooth earnings, this study adds current or lagged values of securitization volume,  $ABS^{Total}$ , as an additional control variable to *DLLP* equation for H4. Results in TABLE 8 indicate that after controlling for the impact of securitization volume, current ( $t=4.41$ ) or lagged ( $t=4.95$ ) value of gains from securitization ( $ABS^{Gain}$ )

still significantly and positively affects *DLLP*. Additionally, the significant and positive impact of current  $ABS^{Gain}$  ( $t=10.58$ ) exists even though *DLLP* is replaced with *TLLP*.

**TABLE 7 Additional Tests:  
Replacing Current ABS Levels with Lagged ABS Values**

Variable	Pred. Sign	Discretionary Loan Loss Provisions (DLLP)		
		H1	H2 & H3	H4
Intercept	?	0.233 *** (3.59)	0.173 *** (2.70)	0.155 ** (2.41)
$ABS_{i,t-1}^{Total}$	+/-	0.017 ** (2.19)		
$ABS_{i,t-1}^{Mort}$	+/-		-0.011 (-1.09)	
$ABS_{i,t-1}^{Nmort}$	+/-		0.045 *** (4.34)	3.391 *** (5.15)
$EBTPS_t$	+	-0.499 (-0.72)	0.021 (0.03)	0.093 (0.14)
$EBTPS_{t+1}$	+	-0.065 (-0.10)	0.450 (0.71)	0.466 (0.74)
$SIZE_t$	+/-	-0.009 *** (-3.90)	-0.007 *** (-2.93)	-0.006 *** (-2.66)
$LEV_t$	+	0.041 ** (1.89)	0.042 ** (1.94)	0.043 ** (2.00)
$ACR_t$	-	-0.001 * (-1.40)	-0.002 *** (-2.67)	-0.002 *** (-2.86)
$LLA_{t-1}$	-	-2.108 *** (-4.15)	-2.737 *** (-5.20)	-2.725 *** (-5.30)
$NPL_{t-1}$	+	0.620 *** (3.37)	0.801 *** (4.24)	0.769 *** (4.15)
$\Delta NPL_t$	+	1.877 *** (4.47)	1.832 *** (4.34)	1.792 *** (4.25)
$MILL_{t-1}$	+/-	-0.026 *** (-3.38)	-0.015 * (-1.87)	-0.012 (-1.58)
N of Obs.		1157	1157	1157
Adjusted $R^2$		0.041	0.053	0.059
F-value		5.95	6.87	8.23

<sup>a</sup>. T-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance level at 1%, 5%, and 10%, respectively.

<sup>b</sup>. Variables are as defined in TABLE 2.

**TABLE 8 Additional Tests:  
Managing Gains from Securitization by Fair Value Assumptions Only**

Variable	Pred. Sign	<i>DLLP</i>		<i>TLLP</i>
Intercept	?	0.190 *** (2.92)	0.142 ** (2.20)	0.001 (1.15)
$ABS_{i,t}^{Gain}$	+/-	3.995 *** (4.41)		0.178 *** (10.58)
$ABS_{i,t}^{Total}$	+/-	-0.017 * (-1.75)		0.000 (0.43)
$ABS_{i,t-1}^{Gain}$	+/-		4.449 *** (4.95)	
$ABS_{i,t-1}^{Total}$	+/-		-0.017 * (-1.72)	
$EBTPS_t$	+	-0.159 (-0.24)	0.091 (0.14)	0.030 *** (2.47)
$EBTPS_{t+1}$	+	0.124 (0.21)	0.518 (0.83)	-0.009 (-0.84)
$SIZE_t$	+/-	-0.007 *** (-2.74)	-0.006 ** (-2.42)	0.000 * (-1.70)
$LEV_t$	+	0.017 (0.81)	0.043 ** (2.00)	0.001 ** (1.74)
$ACR_t$	-	-0.002 *** (-2.84)	-0.002 *** (-2.85)	0.000 (0.27)
$LLA_{t-1}$	-	-2.368 *** (-4.75)	-2.704 *** (-5.27)	0.054 *** (5.95)
$NPL_{t-1}$	+	0.803 *** (4.40)	0.812 *** (4.35)	0.035 *** (10.67)
$\Delta NPL_t$	+	2.202 *** (5.28)	1.799 *** (4.27)	0.046 *** (6.19)
$MILL_t$	+/-	-0.015 * (-1.88)		0.000 *** (-3.16)
$MILL_{t-1}$	+/-		-0.011 (-1.45)	
N of Obs.		1204	1157	1204
Adjusted $R^2$		0.069	0.060	0.485
F-value		9.05	7.77	104.17

<sup>a</sup> T-statistics are reported in parentheses. \*\*\*, \*\*, and \* indicate significance level at 1%, 5%, and 10%, respectively.

<sup>b</sup> Variables are as defined in TABLE 2.

## 5. CONCLUSIONS

This study presents evidence on the use of securitizations. First, objective of income smoothing may be achieved not only by managing volume of securitizations, but also through biased valuation of retained residual interests from securitizations. The volume and gains from securitization explain an important portion of the cross-sectional variation in the discretionary loan loss provisions. These findings imply managers' discretionary

behavior in securitizations and loan loss provisions. In addition, comparisons of mortgage and non-mortgage securitizations reveal that limited degree of liquidity in *ABS* market for non-mortgages doesn't affect managers' discretionary behavior. In particular, managers may use their discretion in volume of non-mortgage securitizations as opposed to mortgages to smooth earnings. Moreover, gains from the transfer of securitized loans may be used to manage earnings through biased fair value estimates of retained interests.

Second, this study tries to identify a specific devise used by banks to manage earnings as substantial body of research focuses on accruals (e.g., loan loss provisions). These results indicate that when it is difficult to achieve smoothing objectives through securitized volume or fair value assumptions underlying retained residual interests due to economic or adverse stock price reactions, estimates of loan loss provisions may be undertaken as a complement.

Finally, the results in this study have implications for the reliability of fair value in the absence of liquid markets. As market prices are not available, quality of accounting numbers may be substantially lower due to fair value measurements. Evidence of biased reporting in this study raises concern over the reliability of firms' financial reporting when fair value measurements are implemented in situations where liquid markets are absent, Level 3 inputs for retained interests, thus, are applicable. As the Boards (Financial Accounting Standards Board and International Accounting Standards Board) are jointly working on projects mandating recognition of financial assets and liabilities at fair value in the financial statement, whether fair value accounting provides another avenue for earnings management should be highlighted.

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