ASSET SECURITIZATIONS BY NON-FINANCIAL FIRMS: MOTIVATIONS AND MARKET VALUATION

by

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ABSTRACT

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This dissertation examines several research questions relating to securitization by non-financial firms. Finance theories suggest securitization is most beneficial when there is high demand for liquidity. On the other hand, empirical studies have shown that firms engage in securitization to manage earnings. I find that liquidity demand, not the incentive for earnings management motivates securitization transactions by non-financial firms. I also evaluate whether earnings management in securitization is indeed undesirable from a shareholder's perspective by examining the economic consequences of the practice. Because securitization creates a large infusion of cash, one way to evaluate the economic consequences of earnings management is to examine whether securitization proceeds encourage overinvestment. I find that earnings management in securitization (i.e., recording non-zero securitization income)

is unrelated to firms' (suboptimal) overinvestment in the post-securitization period. Thus, it appears that earnings management in securitization has no negative economic consequence in terms of generating excess securitization proceeds that encourage overinvestment. I also examine the market's valuation of securitizable assets in the accrual components of earnings and the use of securitization proceeds. Because securitizable assets can be converted into cash through securitization, I test whether the market valuation reflects the source of liquidity in securitizable assets that is similar to the cash component of earnings. I find that, for securitization firms, the market valuation of securitizable assets is similar to that of the cash component of earnings. Lastly, I find some evidence supporting the assertion that firms' liquidity prior to securitization influences the market valuation on securitization proceeds retained on the balance sheet, in that the market assigns a discount to retained proceeds for firms with excess liquidity prior to securitization.

ASSET SECURITIZATIONS BY NON-FINANCIAL FIRMS: MOTIVATIONS AND MARKET VALUATION

TABLES

I. INTRODUCTION

1.1 Introduction

Securitization is one of the most important financing vehicles in the United States. Over the past ten years, the total securities issued amounts to approximately $23.9 trillion dollars, with an outstanding balance of about $9.6 trillion as of the last quarter of 2009 (AFME, 2009). In securitization, the originating company sells rights to cash flows derived from a pool of financial assets (e.g., receivables and loans) to a special purpose entity (SPE) which, in turn, converts the assets pool into tradable securities. The SPE then issues the securities to investors in the capital market and transfers the proceeds back to the originator. From an efficient contracting perspective, securitization provides several benefits both to the originator and to the investors.

First, the unique features of securitization facilitate improved liquidity by converting illiquid financial assets into funds immediately available for investment. By creating direct access to the capital market and better allocating asset risk, securitization enables the originator to achieve a lower cost of capital than traditional financing methods (e.g., issuing equity or debt). The improvement in liquidity, together with the reduction in the cost of capital, potentially helps firms to mitigate underinvestment, such as situations in which firms tend to forgo valuable investment opportunities due to a lack of liquidity. Second, financial institutions that take financing off the balance sheet through securitization reduce the cost of capital imposed by high regulatory capital requirements.

Moreover, securitization may increase the scale of operation for banks, because it provides a way for them to exercise their comparative advantage in generating loans without being constrained by regulatory capital requirements. Because the market's capital requirement is often less than that imposed by regulation, this form of regulatory arbitrage is desirable from an economic standpoint (Berger, Herring, and Szego 1995).[1] For non-bank institutions, an improved leverage ratio as the result of securitization, compared to on-balance sheet borrowing, also indirectly reduces the cost of equity capital. Finally, securitization achieves bankruptcy remoteness, a feature on-balance sheet financing does not offer. Bankruptcy remoteness protects investors of securitized assets in that assets transferred to the SPE are no longer subject to claims by the originator or its creditors in the event of originator bankruptcy.

Despite these benefits, previous studies have questioned the effectiveness of securitization in relation to its economic substance and the debatable accounting treatment on securitization transactions. Several studies investigate whether the degree of risk transfer in securitization justifies its off-balance sheet accounting treatment, especially in the presence of credit enhancement (i.e., retained interest and implicit recourse). To address this question, Landsman, Peasnell, and Shakespeare (2006) show the market's valuation reflects little or no risk transfer from the originator to investors of the securitized assets. Niu and Richardson (2006) reach a similar conclusion by showing that off-balance sheet debt has the same explanatory power for systematic risk (CAPM beta) as on-balance sheet debt.

1. A quote by Alan Greenspan (1998) supports this idea, "it is clear that our major banks have become quite efficient at engaging in such desirable forms of regulatory capital arbitrage, through securitization and other devices."

With regard to securitization as a form of regulatory arbitrage, transactions that offer implicit recourse particularly alarm regulators. Specifically, removing assets and debts from the balance sheet effectively reduces a bank's regulatory capital requirement, while implicit recourse guarantees potentially offset this reduction in asset risk. However, empirical evidence on whether securitization is a form of undesirable regulatory arbitrage (e.g., safety net abuse) is still inconclusive.

From an accounting perspective, studies have shown the decision to engage in securitization is linked to the motivation for balance sheet and earnings management (Karaoglu 2005; Dechow, Myers, and Shakespeare 2009; Dechow and Shakespeare 2009). For example, Dechow and Shakespeare (2009) indicate that recording securitization as a sale transaction has material impact on the firms' incomes and leverage ratios. Dechow et al. (2009) further show that the magnitude of reported gains or losses is influenced by the degree to which pre-securitization income is above or below its benchmark. In particular, managerial discretion over the fair value estimation of securitized assets affects the amount of gains or losses reported in securitization. Moreover, CEO compensation is equally sensitive to securitization gains as compared to other earnings components, implying the notion that compensation rewards motivate CEOs to use securitization as an earnings management tool.

Taken together, empirical evidence from prior studies supports the notion that accounting treatment on securitization permitting the recognition of securitization gains and the removal of securitized assets off the balance sheet provides opportunities for firms to engage in the manipulation of financial statements through securitization. Practitioners also support the notion that securitization is motivated primarily by the

incentive for earnings management. For example, a former GE executive, Zachary Abrams, states that, "Securitization is a way of bringing tomorrow's earnings into today." A CNNmoney.com writer, Jon Briger, also suggests, "The company (GE) uses sales of asset-backed and mortgage-backed securities to provide an 11th-hour boost to quarterly earnings." It appears that practitioner critics view securitization as undesirable due to the opportunities securitization provides for earnings management.

Despite research study evidence and the financial press suggesting earnings management as a motivation for securitization, in theory, given the complexity and transaction costs involved, firms would not undertake securitization transactions unless they were economically rational. Thus, this thesis focuses on better understanding the motivations for securitization and its related economic consequences, particularly for firms in non-financial industries. I examine whether non-financial firms are more likely to engage in securitization when their liquidity falls below the level required to fund general operations and potential investment opportunities. I find a strong association between securitization attempts and firms' ex-ante liquidity demand measured by the level of abnormal cash prior to securitization. This finding also implies that securitization is economically motivated to mitigate the underinvestment problem that occurs when firms face liquidity constraints.

Because the liquidity motive and the earnings management motive for securitization are not mutually exclusive, I also examine non-financial firms' earnings management motive for securitizations. Using the difference between "pre-managed" actual earnings (i.e., earnings adjusted for discretionary accruals and securitization gains or losses) and the prior year earnings as benchmark to capture the incentive for earnings

management, I do not find evidence supporting the idea that the earnings management incentive is related to securitization attempts. Furthermore, for firms with a high propensity for managing earnings through securitization, as evidenced by the recognition of securitization gains, liquidity demand remains a strong determinant for securitization attempts.

Nevertheless, the finding that an ex-ante incentive to manage earnings is unrelated to securitization attempts does not preclude the presence of earnings management in securitization. Accordingly, I also examine the economic consequences of the ex-post propensity to manage earnings in securitization as indicated by the recognition of securitization income. Earnings management in a securitization setting is viewed as undesirable primarily because over- (under-) estimating securitization gains (losses) in the current period can lead to an offsetting effect in the future (Dechow et al. 2009). However, in an efficient market, it is an open question whether the timing effect of gain or loss recognition misleads investors. Furthermore, evidence showing the presence of earnings management alone is insufficient to conclude that securitization and its accounting treatment are undesirable (Barth and Taylor 2009). Thus, it is important to understand whether the presence of earnings management in securitization result in any negative economic impact on firm value that can be detrimental to investor welfare.

Because securitization involves a large infusion of cash proceeds to the originator, one way to investigate the economic consequences of earnings management in securitization is to examine whether “earnings management” transactions encourage overinvestment. In other words, if securitization is driven solely by earnings management

rather than by economic reasons, such as liquidity demand, proceeds from securitization are likely to encourage wasteful spending and suboptimal over-investing by managers.

I use various proxies to capture the propensity to manage earnings in securitization. Specifically, I define "earnings management" transactions assuming that the objective for earnings management is to inflate earnings with securitization gains or to smooth earnings with securitization gains or losses. Regardless which indicator is used to capture the presence of earnings management, I do not find any associations between earnings management in securitization and overinvestment in the periods subsequent to securitization transactions. Thus, the propensity to manage earnings in securitization does not appear to have real negative economic consequence in terms of encouraging overinvestment that is not in the best interest of shareholders. This finding also complements the conclusion about the motivations for securitization in that earnings management may be only a secondary effect we observe when securitization incomes are recognized, but liquidity demand is a primary reason why firms choose to engage in securitization.

I also address the market valuation of two aspects of the securitization transaction: securitizable assets and the use of securitization proceeds. The analysis of this research topic employs a market valuation model based on income and book value, where income is decomposed into the change in securitizable assets, the change in other net operating assets, the change in cash, and net distributions to debt holders and equity holders. For non-financial firms, typical securitized assets consist of various types of receivables (e.g., accounts receivables and trade receivables). The literature on market valuation on income components generally views the change in securitizable assets and the change in other net

operating assets as one component (i.e., the change in net operating assets). Thus, in prior studies, securitizable assets are often assumed to have the same value implication for future earnings as other components of net operating assets.

An important feature of securitizable assets the current literature has not considered is that, through securitization, these assets can be converted into immediate funding to support profitable investment opportunities that are otherwise forgone. Following this logic, securitizable assets incrementally serve as a source of liquidity for securitization firms, and should, therefore, have value implication that is different from those of other net operating assets. My analysis provides evidence in support of this notion. In particular, by decomposing income into components of change in cash, change in securitizable assets, and change in other net operating assets, I find that the market valuation of securitizable assets more closely resembles the valuation of cash than other net operating assets for securitization firms. This finding is consistent with the hypothesis that the market recognizes the source of liquidity embedded in securitizable assets that is similar to cash.

In terms of the market valuation on the uses of securitization proceeds, I provide some evidence supporting the idea that market valuation is related to firms' level of liquidity prior to securitization. I find that, for firms with liquidity demand prior to securitization, proceeds from securitization potentially mitigate the underinvestment problem. Conversely, securitization proceeds have less value for firms with excess liquidity prior to securitization. My analysis focuses on securitization proceeds that are retained in cash and invested in net operating assets. I find that the market valuation of retained securitization proceeds is different between firms with liquidity demand and

firms with excess liquidity. In particular, the market assigns a discount to retained securitization proceeds for firms with excess liquidity prior to securitization. I find no evidence to support the assertion that the market valuation of securitization proceeds invested in net operating assets is influenced by the firm's liquidity prior to securitization. In general, the market valuation on invested proceeds does not distinguish between firms with liquidity demand and firms with excess liquidity.

1.2 Motivation and Contribution

This study contributes to the literature on securitization in several ways. First, only a limited number of securitization studies have focused exclusively on non-financial firms, partially due to the difficulty in data collection. Given the difference in firm characteristics between financial institutions and non-financial firms, most findings from prior securitization studies on financial institutions cannot be generalized to non-financial firms. Thus, a motivation of this study is to extend our understanding on several dimensions of securitization for non-financial firms.[2]

Second, the liquidity motivation for securitization has received less attention in prior studies that attempt to explain why firms engage in securitization transactions, partially because it may seem obvious that securitization is a source of liquidity where securitizable assets are converted into cash. However, firms with liquidity demand can also choose to raise capital through equity financing or debt financing. Furthermore, prior studies (Karaoglu 2005; Dechow et al. 2009; Dechow and Shakespeare 2009) and critics from the financial press have indicated securitization is used as an earnings management

2. I examine the following dimensions of securitization: the motivations for securitization, the economic consequence of earnings management in securitization, the market valuation of securitizable assets, and the effect of liquidity on the market valuation of the uses of securitization proceeds.

tool by accelerating securitization gains or losses to the current period. Therefore, this study adds to the literature on the motivation for securitization by providing empirical evidence supporting liquidity demand but not earnings management motivation for securitizations by non-financial firms.

Third, prior studies documenting the existence of earnings management in securitization have not directly investigated whether recording non-zero securitization income is indeed detrimental to investor welfare (Barth and Taylor 2009). My finding that the propensity to manage earnings in securitization (i.e., recording non-zero securitization income) is unrelated to future overinvestment by securitization firms provides insight into this question. This finding is relevant to the standard setting debate on whether the off-balance sheet treatment of securitization is justified in terms of allowing the recognition of securitization income.

Finally, the finding on the market valuation of the components of net operating assets adds to the literature on the market valuation of accruals. Specifically, prior research has treated the components of accruals (i.e., securitizable assets and other net operating assets) as homogenous. However, securitizable assets also serve as a source of liquidity, and thus have value implication for future earnings beyond those in other net operating assets. Consistent with this notion, I show that for securitization firms, the market assigns different valuation to securitizable assets than to other net operating assets. Furthermore, the market valuation of securitizable assets is more similar to the market valuation of the cash component of earnings. Thus, this finding provides opportunities for future research to re-examine whether conclusions drawn from the

accrual anomaly studies are sensitive to the decomposition of accruals into securitizable assets and other net operating assets.

1.3 Organization

This study proceeds as follows: Chapter 2 provides an institutional background on securitization. Chapter 3 examines the motivations for securitization and the economic consequences of earnings management in securitization. Section 3.1 reviews existing literature relating to the motivation for securitization; Section 3.2 provides hypothesis development; Section 3.3 details the methodology; Section 3.4 outlines the sample selection procedure and reports descriptive statistics; Section 3.5 presents the results on the motivation for securitization; and Section 3.6 presents the results on the economic consequence of earnings management in securitization. Chapter 4 examines the market valuation of securitizable assets and the uses of securitization proceeds. Section 4.1 reviews the literature relating to the market valuation of securitization; Section 4.2 details the hypotheses and methodology; Section 4.3 reports descriptive statistics on key variables; Section 4.4 presents results on the market valuation of securitizable assets; and Section 4.4 presents results on the market valuation of the uses of securitization proceeds. Chapter 5 concludes by summarizing the findings and identifying limitations.

II. BACKGROUND

2.1 Institutional Background

In an asset securitization transaction, the originator first pools various financial assets that have cash flow streams and that can be transformed into marketable securities. In addition to the most common mortgage loans, examples of other financial assets that comprise the largest segment of the asset-backed securities market include home equity loans, auto loans, credit card loans, and student loans. For industrial firms, the most common securitized asset is (short-term and long-term) accounts receivable.

The originator sells the financial assets pool to a special purpose entity (SPE), which serves as a pass-through vehicle holding passive control over the assets. The SPE issues securities backed by the asset pool to outside investors. The investors will be repaid by the cash flows generated by the financial assets. To signal the quality of the securitized assets and to minimize the moral hazard problem, the originator typically retains a first-loss position in the asset pool. Additionally, due to reputational concern, in securitization the originator often offers implicit recourse.

At first glance, securitization appears to share similarities with collateralized borrowing. In terms of accounting, however, there is an important distinction between these two structured finance methods that determines whether the particular transaction will be treated as a "true" sale or as secured borrowing. During the sample period of this study, securitization transactions were accounted for according to FASB Statement No.

140, which specifies several conditions of "surrender of control" that must be present before a securitization transaction can be classified as a sale.[3] Specifically, the securitized assets must be isolated from the originator and its creditor in the event of bankruptcy. In addition, the transferee must receive the complete rights to pledge or exchange the assets. Finally, the originator can no longer have effective control over the securitized assets. In short, there should be no contractual agreement that entitles or obligates the originator to repurchase or redeem the assets before maturity, nor should there be ways in which the originator can cause the transferee to return the securitized assets (with the exception of a cleanup call).[4]

According to Statement No.77 (and subsequently No.140), however, an asset transfer with recourse does not necessarily preclude the sale accounting treatment (Schipper and Yohn 2007). The rationale is that, despite a partial risk of ownership retained by the originator, future economic benefits of the securitized assets have been surrendered. Furthermore, the definition of recourse is not sufficient to meet the accounting definition of a liability, since the transferor is obligated to make up for the losses only when the assets underperform.

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3. In 2009, FASB issued FAS166 and 167 in amendments to FAS 140 and FIN 46(R). FAS 166 revises the concept of financial components and specifies the conditions under participating interest for sale accounting when a portion of a financial asset is transferred. In essence, the new accounting standards limit the circumstances in which a securitized asset should be derecognized.

4. Quote from Summary of Statement No.140: a) The transferred assets have been isolated from the transferor-put presumptively beyond the reach of the transferor and its creditors, even in bankruptcy or other receivership. b) Each transferee (or, if the transferee is a qualifying special-purpose entity (SPE), each holder of its beneficial interests) has the right to pledge or exchange the assets (or beneficial interests) it received, and no condition 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. c) The transferor does not maintain effective control over the transferred assets through either (1) an agreement that both entitles and obligates the transferor to repurchase or redeem them before their maturity or (2) the ability to unilaterally cause the holder to return specific assets, other than through a cleanup call.

Another related accounting issue involves whether the originator is required to consolidate the SPE, which effectively negates the sale transaction by including assets and liabilities of the SPE on the consolidated balance sheet of the originator (Landsman, Peasnell, and Shakespeare 2008). In response to this issue, paragraph 35 of Statement No.140 establishes the concept of a qualifying SPE (QSPE) that is exempt from the consolidation requirement.[5] To meet the prerequisites of a QSPE, an SPE must 1) permit only significantly limited activities that are all explicitly specified in a legal document, 2) hold only financial assets that are passive in nature, and 3) have limited ability to dispose of the financial assets.[6] If no consolidation is required, then the sale accounting treatment of securitization effectively achieves off balance sheet financing.

Sale accounting permits recognition of gains or losses from the sale of financial assets. When no interests or servicing rights are retained, the originator recognizes a cash gain or loss as the difference between the transaction price and the cost of the financial assets. In more typical cases, non-cash gains or losses are recognized when the originator

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5. SFAS 167 eliminates the concept of a qualifying special purpose entity in FIN 46(R) and requires a re-evaluation of existing QSPE for consolidation.

6. "35.b. Its permitted activities (1) are significantly limited, (2) were entirely specified in the legal documents that established the SPE or created the beneficial interest in the transferred assets that it holds, and (3) may be significantly changed only with the approval of the holders of at least a majority of the beneficial interests held by entities other than any transferor, its affiliates, and its agents..."

"35.c. It may hold only:

(1) Financial assets transferred to it that are passive in nature..."

"35.d. If it can sell or otherwise dispose of noncash financial assets, it can do so only in automatic response to one of the following conditions:

(1) Occurrence of an event or circumstance that (a) is specified in the legal documents that established the SPE or created the beneficial interests in the transferred assets that it holds; (b) is outside the control of the transferor, its affiliates, or its agents; and (c) causes, or is expected at the date of transfer to cause, the fair value of those financial assets to decline by a specified degree below the fair value of those assets when the SPE obtained them..."

retains an interest in the financial assets. Gains or losses are determined by allocating the carrying value of the assets between the portion securitized and the interest the originator retains. The allocation is based on the relative fair values of the assets. Thus, the transaction results in a gain if the fair value of the securitized portion exceeds its carrying value. No gains are recorded for the portion the originator retains. While the fair value of the securitized portion generally equals the transaction price, the fair value estimation related to the retained interest is very subjective, since it is based on assumptions determined by the originator. As a result, accounting for securitization gains and losses offers some opportunities to manipulate earnings (Dechow et al. 2009).

2.2 Retained Interest

The financial components concept underlying FAS No.140 allows the originator to retain some of the contractual interests in the financial assets and to account for the transaction as a partial sale. An incentive for the originator to retain an interest in the asset pool is to mitigate the moral hazard problem (Karaoglu 2005). The originator has more information about the underlying assets than outside investors, thus creating potential moral hazard and adverse selection problems between the two parties (e.g., selling risky financial assets and imposing losses on investors). By retaining a partial interest, the originator can signal to outside investors something about the quality of the underlying assets. In general, the originator can retain three types of contractual interests: servicing rights, a recourse obligation, and a direct interest in the asset-backed securities (ABS) (Chen, Liu, and Ryan 2008). Retention of partial ABS (interest-only strips or subordinated ABS) is the most common form of credit enhancement. The originator retaining interest-only strips of ABS receives only interest payments equal to the amount

by which interest earned on the securitized assets exceeds interest paid to the most senior ABS sold to investors. Therefore, any prepayment risks remain with the originator.

In the case of subordinated ABS, securitized assets are commonly assigned to different tranches, with a portion sold and the rest retained by the originator. Securitization tranches are structured to allocate different risks and rewards of the underlying financial assets to various tranches. For example, collateralized mortgage obligation securitizations create two special subordinated tranches: Z (for zero) and R (for residual), in addition to other, more senior sequential-pay tranches (A, B, C…) (Ryan 2007). Tranche Z receives principal or interest payments only after the preceding tranches (A, B, C…) have been paid. As the name implies, tranche R receives only the residual payments after all other tranches are paid. As a result, tranche R bears the greatest risk of losses.

In theory, the originator often retains the most subordinated tranche(s) and sells the most senior tranches to signal the quality of the assets and to credit-enhance the transaction (Chen et al. 2008). The arrangement implies that while partial transfer of financial assets truncates the downside risks of the asset pool, the originator still retains the most risk associated with the underlying assets. Therefore, this format presents potential accounting issues in terms of how accounting information best portrays the first-loss interest the originator retains. For users of financial statements, it presents difficulty with risk assessments, because one must understand the characteristics of the retained interests and how they translate into the risk retained by the originator.

Relating to the issue of retained interest, Landsman et al. (2008) investigate whether the amount of retained interest influences the market's perception of risk transfer

(i.e., the risks and rewards of asset ownership) from the originator to the SPE. By estimating a set of cross-sectional equity valuation models using accounting numbers after adding back the transferred assets and liabilities, they demonstrate that the market does not perceive asset transfers in securitizations as economic sales. Overall, the risks and rewards of the securitized assets remain with the originator, even though the assets have been removed from the originator's balance sheet. The cross-sectional variation in the level of retained interest, however, has no incremental effect on the market's perception. Nevertheless, this finding should be interpreted cautiously, since the evidence is also consistent with an inference that there is no risk transfer in securitization, or the possibility that insufficient information prevents the market from understanding the degree of risk transfer based on the level of retained interest (Landsman et al. 2008).

Chen et al. (2008) show that the characteristics of securitizations determine banks' retention of contractual and non-contractual risk of their off balance sheet activities. For example, they find that the total risk retained by banks is higher when the type of securitized loans has higher (or less externally verifiable) credit risk.[7] For mortgage loans and commercial loans, banks' retention of total risk increases with the magnitude of retained interest. Finally, total equity risk also increases when the type of retained interest carries more concentrated risk (e.g., interest-only strip as opposed to subordinated ABS).

A more recent study by Barth, Ormazabal, and Taylor (2009) investigates the association between credit risk and retained interest in securitized assets. They find

7. Chen et al. (2008) define risks associated with different types of securitized assets as follows: "commercial loans have relatively high and difficult to verify credit risk, consumer loans have relatively high but easier to verify credit risk, and mortgages have relatively low and easy to verify credit risk). 2. Credit-enhancing interest-only strips have more concentrated risks than other subordinate asset-back securities)."

limited evidence suggesting a positive association between credit risk and retained interest when using credit ratings as a proxy for credit risk. The association between credit risk and retained interest becomes more apparent when bond spreads are used to measure credit risk. Their findings imply that credit rating agents generally view securitization transactions as asset sales, whereas the bond market views securitizations as secured borrowings.

2.3 Implicit Recourse

In addition to the fact that implicit recourse (i.e., performance guarantees) amounts to retention of a contractual interest by the originator, it also serves as another source of credit enhancement in securitization. Although it is not legally binding, implicit recourse represents the originator's inherent obligation to absorb losses on underperforming assets. Since implicit recourse is only a mutual understanding, rather than a contractual performance guarantee, it does not preclude sale treatment under FAS No. 140. According to the Office of the Comptroller of the Currency's Guidance 2002-20, "Interagency Guidance on Implicit Recourse in Asset Securitization," examples of implicit recourse include the following:

- Selling assets to a securitization trust or other SPE at a discount from the price (typically par value) specified in the securitization document;
- Purchasing assets at an amount greater than fair value from a trust or other SPE;
- Exchanging performing assets for nonperforming assets in a trust or other SPE;
- Funding credit enhancements beyond contractual requirements.

Higgins and Mason (2004) suggest that implicit recourse is important and necessary for securitizing firms because of the need to maintain a reputation for consistent credit quality over repeated sales. From a regulatory standpoint, implicit recourse may be undesirable, because it effectively allows banks to reduce their regulatory capital requirements without reducing their risk exposure. In response to this assertion, Calomiris and Mason (2004) examine whether regulatory arbitrage through securitization with implicit recourse is socially and economically beneficial. The "safety net abuse" argument suggests that implicit recourse is socially undesirable, because it manipulates the regulatory capital requirement by allowing the transfer of losses back to the originator. In contrast, under the efficient contracting view, implicit recourse provides a solution to the problem of asymmetric information between the originator and investors, and thus achieves a more efficient allocation of risks. By showing that the originator is maintaining the level of capital far above the regulatory requirement, Calomiris and Mason (2004) conclude their finding is inconsistent with the “safety net abuse” argument for securitization with implicit recourse. In addition, Calomiris and Mason (2004) provide evidence supporting the efficient contracting view by showing that the originator maintains a level of capital that meets the capital requirement imposed by the market.

III. MOTIVATIONS FOR SECURITIZATION

3.1 Literature Review

A considerable body of research has been dedicated to understanding the motivations for securitization. A survey of this literature by Schipper and Yohn (2007) categorizes the underlying motives for securitization into two classes: economic motivations and accounting motivations. Economic motivations support reasons such as: reducing the cost of capital and bankruptcy expenditures, improving liquidity, and allocating asset risks; explaining why firms engage in securitization (Calomiris and Mason 2004; and Minton, Sanders, and Strahan 2004). Alternatively, accounting motivations are linked to the income, balance sheet, and regulatory capital effects of securitization (Dechow et al. 2009; Dechow and Shakespeare 2009; Karaoglu 2005).

3.1.1 Economic Motivations

The majority of studies seeking to understand whether economic reasons are the driving force behind securitizations focus primarily on firms in the financial industry. The financial industry is of particular interest in this literature because of the large concentration of securitization activities within the industry. More importantly, because financial institutions are highly regulated, there are competing theories as to why firms in the financial industry engage in securitization. Regulatory arbitrage incentives suggest that securitization allows banks to reduce regulatory capital by removing securitizable

assets from the balance sheet. The alternative is that securitization is driven by economic reasons such as risk allocation and minimizing the cost of capital.

In an attempt to distinguish between the regulatory arbitrage argument and the economic motivations for securitizations, Minton, Sanders, and Strahan (2004) compare securitization activities of unregulated financial institutions and regulated commercial banks. They find that unregulated financial institutions, including investment banks, are more likely to securitize assets than regulated commercial banks. Moreover, unregulated financial institutions increase securitization activities as their leverage level increases, whereas commercial banks actually become less likely to securitize. This finding is contrary to what one would expect under the regulatory arbitrage explanation of securitization. In addition, within unregulated financial institutions, those institutions with greater risks and higher leverage are more likely to engage in securitization than institutions with lower risks. This evidence further supports the idea that securitization is a vehicle for lowering financial distress costs associated with traditional debt or equity financing.

Along similar lines, Calomiris and Mason (2004) investigate the motivations for securitization among banks that issue credit cards. They examine specifically whether providing implicit recourse in credit card securitization is a form of undesirable regulatory arbitrage (i.e., “safety net abuse”) or a means of efficient contracting. Providing implicit recourse in securitization signals that the originator retains the risks inherent in securitized assets. In essence, securitization with implicit recourse is an off-balance sheet financing transaction as opposed to a sale transaction where risks associated with securitized assets are truly transferred out from the originator. Thus, regulators have

expressed concern over whether securitization, in substance, is a form of "safety net abuse" for banks because it permits the avoidance of regulatory capital on securitized assets while the risks associated with those assets are retained through implicit recourse. On the other hand, the efficient contracting perspective suggests several benefits associated with credit card securitization. First, asset risks are allocated into different tranches of securities that better suit the preferences of various financing sources. Second, the adverse-selection problem associated with credit card accounts is reduced by increasing the monitoring by market participants through securitization. Finally, to the extent that regulatory requirement demands banks to hold excessive capital, securitization may be a way to promote growth by allowing banks to economize on capital resources.

To determine whether securitization by credit card banks are motivated by "safety net abuse" or benefits as arise from efficient contracting, Calomiris and Mason (2004) examine the levels of capital maintained by credit card banks. They find that not only do securitizing banks maintain levels of capital beyond the minimum regulatory requirement, but they also, on average, hold more capital than non-securitizing credit card banks. This finding is contrary to the "safety net abuse" explanation of securitization. Moreover, by showing evidence that the levels of capital maintained by securitizing banks corresponds to the market's perception of risk, Calomiris and Mason (2004) conclude that economic reasons such as risk allocation and increased market monitoring motivate credit card banks to engage in securitizations.

3.1.2 Earnings Management Motivations

From an accounting angle, the originator of securitization can achieve several accounting benefits by structuring securitization transactions as sales rather than secured

borrowings. First, since the receipt of cash proceeds under sale accounting is a form of asset exchange, no liability is recorded on the balance sheet. Therefore, securitization has no effect on the originator's leverage. Second, cash proceeds from securitization are recorded under operating or investment cash flows, instead of financing cash flows on the cash flow statement. Finally, the sale treatment of securitization enables an acceleration of accounting income by permitting the recognition of securitization gains in the current period. More importantly, valuation of the retained portion of securitized assets offers opportunities for managers to exercise discretion over securitization gains.

In terms of the accounting benefits of securitization, existing literature questions whether securitization is motivated primarily by opportunities for earnings management. Ryan (2007) indicates that the timing of securitizations, along with the sale accounting technique, allow originators of securitization to increase or decrease current-period earnings. He cautions users of financial information to evaluate the impact of securitization gains (or losses) on originators' pre-securitization earnings as well as the amount of potentially securitizable financial assets relative to the amount of securitized assets.

Dechow and Shakespeare (2009) examine the timing of securitizations and find that most transactions are clustered in the last month, or even the last few days, of the quarter. They further indicate that this clustering is not driven by consumers' demand for the underlying assets, by firms' demand for financing, by accumulations in receivables, or by investors' demand for security tranches. Dechow and Shakespeare (2009) also find that securitization transactions have material impacts on earnings and leverage ratios of securitizing firms. For 69 percent of firms in their sample, securitization gains move

earnings from negative to positive. Moreover, debt-to-equity ratios increase, on average, by 42 percent when off-balance sheet debts are added back to the balance sheet. Based on these empirical findings, Dechow and Shakespeare (2009) conclude that firms "time" their securitizations towards the quarter end in an attempt to "window-dress" the balance sheet and maximize positive impacts on financial statements.

A more recent study by Dechow et al. (2009) examines if and how managers use discretion to inflate gains from securitizations, and whether CEO compensation is sensitive to this source of gains. They find that firms prefer to report higher securitization gains (lower securitization gains or even losses) when earnings are low or negative (high). With regard to how earnings are managed with securitization transactions, Dechow et al. (2009) point out that managers have considerable leeway when they estimate default rate, prepayment rate, and discount rate in determining the fair value of the retained portion of securitized assets. In particular, Dechow et al. (2009) find the average discount rates employed by firms are higher when securitization gains are reported (12.38%) than when securitization losses are reported (8.68%). This evidence, however, provides only limited support for an inference of discretion over discount rate. In the absence of more detailed disclosure, it is difficult to determine whether the choice of discount rate is driven by underlying economic factors or manager's discretion.

In reviewing Dechow et al.'s (2009) study, Barth and Taylor (2009) make a valid point when they suggest that discretion over estimates of fair value of retained interests provides limited opportunity for earnings management. The reason is that the fair value of a retained interest only indirectly affects the magnitude of securitization gain through an allocation of carrying value to the portion of assets being securitized. Recording gains in

securitization can be a form of real earnings management, where a decision is made concerning when and which assets are securitized. Firms are likely to select assets whose market value is favorable in relation to carrying value in securitization. Ryan (2007) shares the same position by suggesting that "an issuer that wants to increase (decrease) gains on sale will deplete (build up) its stock of potentially securitizable financial assets, assuming the fair value of these assets exceeds their carrying value."

In the context of loan transfers in the banking industry (i.e., loan sales and securitization with retained interest), Karaoglu (2005) also indicates that managers can use discretion over the timing of securitization, selection of loans, and valuation of retained interests to manage regulatory capital and earnings. To support this assertion, Karaoglu (2005) first shows that gains from both loan sales and securitizations are used to smooth earnings, avoid earnings decline, and meet analyst forecasts. To achieve gains in loan transfers, banks "cherry-pick" loans (i.e., timing and selection of loans) in both loan sales and securitizations. Karaoglu (2005) also compares the effects of loan sales on earnings and regulatory capital with those of securitization. Because gains from securitizations (not gains from loan sales) are related to the estimation of retained interest in securitization, the comparison provides an inference on whether banks also exercise discretion over the estimation of retained interest. By showing that securitization transactions have stronger earnings and regulatory capital effects than loan transfers, Karaoglu (2005) concludes that biased reporting in the form of discretion over the valuation of retained interest is another source of earnings management in securitization.

3.2 Hypothesis Development

Collectively, existing financial industry studies document evidence that supports both economic motivation and accounting motivation for securitization. Using a unique sample of non-financial firms, I attempt to provide additional insight into the motivations for securitization. Specifically, I investigate whether the demand for liquidity explains why firms engage in securitization. I also re-examine the accounting motive for securitization by investigating whether the incentive to manage earnings motivates securitization among non-financial firms.

The following section describes in detail the "pecking order" financing theory linking firms' financing choices to the underinvestment problem that occurs when firms pass up valuable investment opportunities because internal funds are insufficient and the costs of financing options are prohibitive. I also explain the reasons that external financing using securitization achieves lower cost of capital than other forms of financing. Through this discussion, I establish a verifiable hypothesis linking firms' liquidity demands to their securitization decisions. Empirical evidence of an association between liquidity and securitization decisions provides support for the notion that securitization can be economically beneficial in that it mitigates the underinvestment problem.

3.2.1 Financing Choices and the Underinvestment Problem

In one of the most cited papers on corporate finance, Myers and Majluf (1983) present a model analyzing firms' financing choices in the presence of information asymmetry between firms (hereafter, managers) and outside investors. Financing new

investment projects follows a “pecking order” in that internal funds take priority, followed by (low-risk) debt, and finally equity. This “pecking order” theory suggests a potential underinvestment problem: without sufficient internal funds, firms are likely to pass up valuable investment opportunities when debt and equity financing options are constrained.

Consider first the choice of issuing equity in the presence of information asymmetry between managers and external investors. Managers who withhold information about the value of a firm's assets in place and investment opportunities are either unwilling or unable to reveal their information to the public (e.g., due to proprietary information considerations). As a result, new investors willingly purchase a firm’s shares only when the price falls below what these shares are actually worth. Issuing underpriced new shares, however, dilutes existing shareholder wealth. Consequently, managers forgo positive net present value (NPV) investment opportunities when equity financing is the only option and the price discount is sufficiently large.

The introduction of debt as an alternative does not change the situation. Myers and Majluf’s (1983) model further shows that even when shares are not underpriced, the firm remains unable to issue shares at the equilibrium price new investors are willing to accept. The rationale for this notion can be described as follows. A firm chooses to raise capital through issuing equity or debt in period t. In period t+1, when the firm’s intrinsic value is revealed, the wealth of existing shareholders (W_{old}) equals the sum of financial slack (e.g., cash), the value of assets in place, and the (realized) value of investment projects, less any capital gains (or plus any capital losses) to new shareholders or creditors. In other words, the wealth of existing shareholders (W_{old}) in period t+1 is the

inverse of any wealth changes (e.g., capital gains or losses) to new shareholders (ΔW_{new}) or to creditors ($\Delta W_{creditors}$). By definition, ΔW_{new} and $\Delta W_{creditors}$ have the same sign because the payoffs from assets-in-place and investment projects are independent of whether they are financed by equity or debt.

The magnitudes of ΔW_{new} and $\Delta W_{creditors}$ are expected to be different in that $|\Delta W_{new}| > |\Delta W_{creditors}|$. Acting in the interest of old shareholders, managers will issue equity only if the wealth change to new shareholders is smaller (or more negative) than the wealth change to creditors (i.e. $\Delta W_{new} < \Delta W_{creditors}$). Thus, issuing equity when the option of issuing debt is available implies a definite capital loss for new investors (i.e., the wealth change must have a negative sign to satisfy $\Delta W_{new} < \Delta W_{creditors}$). It follows that no equilibrium issue price can satisfy both these conditions: 1) shareholders earn capital gains on their investment, and 2) managers maximize the wealth of existing shareholders. The discussion here shows that when managers act in the interest of existing shareholders, the opportunities for raising capital by issuing equity are limited when there are manager-shareholder information asymmetries.

Although the choice of issuing debt may dominate the choice of issuing equity from the option-pricing standpoint, agency costs often impose constraints on debt issues, thereby making debt financing more restrictive. For example, existing bondholders often mandate debt covenant restrictions that prevent the firm from issuing additional debt to fund investment projects, even if the projects have positive net present value. In addition, the increase in bondholders' claims reduces the project's return that will accrue to shareholders. Thus, increased debt raises the likelihood of forgoing a positive NPV project. Furthermore, risky debt increases financial distress and potential bankruptcy

costs, creating a disincentive for managers (acting on behalf of shareholders) to continue investment projects, since the payoff from an investment is likely to be realized by bondholders in the event of bankruptcy (Myers 1977).

To sum up, information asymmetry between managers and shareholders, accompanied by costs associated with issuing debt, introduce the underinvestment problem. Firms forgo positive net present value investment projects when internal funds are insufficient and financing options are constrained. Securitization can mitigate this underinvestment problem, because it avoids the information asymmetry problem in equity financing and reduces debt financing costs.

3.2.2 Liquidity Demand and Securitization

In securitization, securitized assets are segregated from a firm's general operating risk. Bankruptcy remoteness provides added protection to investors in securitized assets. As a result, securitization effectively achieves a lower cost of capital than other financing methods such as issuing debt or equity. To understand this effect of risk segregation on the reduction in cost of capital through securitization, it is essential to understand the required rate of return assigned by capital providers on individual assets, as opposed to the rate of return assigned to a firm as a whole. In general, cost of capital is a function of risk premium based on the overall riskiness of a firm. In securitization, highly liquid securitized assets are separated from the firm's operational risk. Typically, since securitization investors are repaid with cash flows from underlying assets, the firm's general financial condition is of little concern. Thus, the required rate of return assigned to securitized assets should be lower than the required rate of return assigned to the firm as a whole.

As an example, consider a firm that has two classes of assets, each representing 50% of the firm's total assets. Class A represents highly liquid assets with relatively low risk (e.g., accounts receivables). Class B represents other assets with a level of risk that is highly correlated to the firm's general operational risk. Next, assume that the required rate of return based on the risk premium assigned to class A and class B is 1% and 10%, respectively. Accordingly, the overall required rate of return demanded by capital providers is 5.5% (i.e., the weighted average of 1% and 10%). As a practical matter, information asymmetry between the firm and its capital providers often prevents the firm from successfully signaling the use of class A assets. For example, if bondholders perceive that half of the class A assets will be used as dividend payments to shareholders, then bondholders' required rate of return will reflect a lower weighting of A. In this case, the overall rates of return demanded by bondholders for lending capital to the firm increases to 7%.[8] This example shows that the required rate of return on the firm as a whole, as opposed to that on any individual asset, can range from the weighted average of required rates of return on different assets to the required rate of return on the firm's riskiest assets. In comparison, the required rate of return on class A assets by themselves is much lower at 1%. Securitization of class A assets effectively separates these assets from the firm's general operational risk. Accordingly, the originator of securitization is able to achieve a much lower cost of capital, at 1% in this example.

In addition to the reduction in cost of capital resulting from the segregation of asset risks, specialization by finance intermediaries also adds benefits to securitization

8. The calculation of required rates of returns demanded by bondholders is as follows: (50%/2)/[1-(50%/2)] * 1% + 50%/[1-(50%/2)] *10% = 7%.

transactions by reducing monitoring costs incurred by the SPE's investors. In a private placement of an SPE, the transaction is often geared to investors who are sufficiently informed about the assets' value. In public offerings, rating agencies' appraisals often convey a reasonable amount of information about the quality of securitized assets. For example, Schwarcz (1994) indicates that securities issued by the SPE in securitization transactions often receive higher ratings than other securities issued directly by the originator. More favorable ratings are assigned to securities in securitization, because there is less uncertainty involved in estimating the future cash flow tied directly to securitized assets than that of a firm as a whole.

The bankruptcy remoteness feature of securitization provides added protection to investors. Recording securitization as a sale of securitizable assets creates a protective barrier that limits a firm's general creditors' access to securitized assets once the assets are transferred to a bankruptcy remote SPE. To reinforce SPE's bankruptcy remoteness, rating agencies often require the originator to provide an attorney's opinion letter, stating that "The SPE likely will not be substantively consolidated with the originator and that the transaction will effectively remove the assets from the originator's bankruptcy estate" (Frost 1997).

Frost's (1997) comparison of securitization to collateralized borrowing in the context of bankruptcy proceedings illustrates the shortcomings of the bankruptcy system in protecting secured creditors. In particular, he indicates that the reorganization provision in Chapter 11 of the Bankruptcy Code provides equity holders with opportunities for delays in liquidation. Equity holders have incentives to support reorganization if they expect to receive no distribution from liquidation. As a result, even the claims of secured

creditors cannot be enforced immediately. In contrast, the sale of assets to an SPE in securitization not only strengthens priority claims but it also results in a structural priority that guarantees investors' interest in bankruptcy proceedings. Accordingly, securitization is more efficient than the use of traditional (secured and unsecured) debts, because it essentially allows the SPE's investors to opt out of the bankruptcy reorganization process.

Modigliani and Miller's capital structure irrelevance theorem articulates the idea that, in an efficient market, a firm's value is unaffected by how the firm is financed. To reconcile the idea that securitization achieves lower cost of capital with the capital structure irrelevance principle, it is important to understand whether securitization creates value from the perspective of all investors (efficiency based) or only transfers risks from one class of investors to another (distribution based). The distribution-based argument can be made by applying the "exposure conservation principle" developed by Schwarcz (1984).[9] This principle explains why secured borrowing does not affect a firm's cost of capital. In secured borrowing, collateralizing assets reduces the amount of assets against which unsecured creditors can levy. In response, unsecured creditors will raise their interest rates which, in turn, offset the interest rate reduction attained by issuing secured debt. Hence, secured borrowing merely distributes risk between secured and unsecured creditors and results in net zero reduction in the cost of capital.[10]

9. From Schwarcz's paper footnote 46 – Paul M. Shupack, and from Iacobucci and Winter 2005's paper p170-lopucki 1996 p24).

10. In Schwarcz's (1984) words: "secured creditors will charge lower interest rates because security reduces their risks, but unsecured creditors will raise their interest rates in response because security reduces the assets on which they can levy, and so increases their risks. The interest rate reductions are precisely matched by interest rate increase; hence, the firm makes no net gain from granting security."

This exposure conservation principle, however, is imprecise when applied to securitization transactions record as asset sales. Since securitization involves an exchange of different classes of assets (e.g., exchanging receivables for cash), it affects the originator's asset structure rather than its capital structure. So long as securitized assets are sold at fair prices, the transaction itself does not diminish the amount of assets against which the originator's general creditors can levy. In particular, the distinguishing feature between asset securitization and secured debt is that the sale treatment of securitization also benefits the originator by insulating its equity from fluctuations in the value of securitized assets (Iacobucci and Winter 2005). Assuming no implicit recourse is involved, the originator is not held responsible for any shortfall in the securitized assets. The loss is either covered entirely by third-party insurers or is imposed on investors in the securities.[11] In comparison, any losses in collateral assets backing secured debt is shared among the firm's shareholders, bondholders, and secured creditors. Hence, the efficiency argument applies to securitization because, in theory, the reduction in the required rate of return demanded by an SPE's investors is not offset by any increases in the rate of return required by the originator's other creditors.[12] Thus, the efficiency argument of securitization deviates from the capital irrelevance principle described by Modigliani and Miller in that securitization represents an asset exchange rather than merely an asset allocation where risks are distributed to different classes of investors.

11. As discussed later, in an efficient market, investors or third-party insurers demand a rate of return that is necessary to bear any risk of losses on securitized assets. Therefore, in equilibrium, securitization should result in no reduction in the cost of capital.

12. While the firm's other creditors potentially could adjust their required rate of return to reflect the riskiness of the investment project, the adjustment would not be any more than that necessary if traditional debt had been issued to fund the project.

Collectively, the preceding discussion posits that securitization effectively achieves a lower cost of capital than other financing methods. Thus, when facing liquidity demand, and to avoid the underinvestment problem, the option of securitization appears preferable to issuing equity or debt as a means to raise capital. Nevertheless, from an economic standpoint, securitization only creates value if additional capital needs to be raised. Specifically, if a firm's liquidity is insufficient to maintain existing assets in place and/or to finance new positive NPV projects, then securitization creates economic value, because it mitigates the underinvestment problem. Conversely, if a firm's liquidity is already sufficient or even excessive, then there should be no need to raise additional capital by way of securitization. This leads to the first hypothesis examining liquidity demand as an explanation for securitization. To measure firms' liquidity demand, I use the level of abnormal cash holdings estimated by use of the model from Opler, Pinkowitz, Stulz, and Williamson (1999). Liquidity demand is inversely related to the deviation of cash holdings from the optimal levels estimated in the model. Accordingly, I predict:

H1: The level of abnormal cash holding prior to securitization is negatively associated with the likelihood of securitization.

3.2.3 Earnings Management Incentive and Securitization

Prior studies have shown that accounting motives, particularly earnings management, explain why firms engage in securitization. When securitization qualifies for sale accounting treatment, the originator recognizes a gain or loss from the transaction, depending on the fair value of the interest in securitized assets that is retained by the originator. The valuation of the retained portion of securitized assets gives

managers some discretion to manipulate the magnitude of securitization gains or losses. Dechow et al. (2009) find evidence suggesting that managers exercise discretion over the estimation of default rate, prepayment rate, and discount rate when determining the fair value of retained securitized assets. They show that firms are more likely to report higher securitization gains when pre-securitization earnings are either lower than the benchmark or negative, and that firms are more likely to report lower securitization gains (or even losses) when pre-securitization earnings are higher than the benchmark. The timing of securitization transactions also enables the originator to increase or decrease current-period earnings to achieve income smoothing (Ryan 2007). Empirically, Dechow and Shakespeare (2009) show that firms schedule securitization transactions towards the quarter end, and that these transactions have material impacts on the originator's balance sheet and income statement. Using a sample of banks, Karaoglu (2005) shows that both cherry-picked loans (e.g., timing and selection of loans) and biased reporting (e.g., discretion over the estimation of fair value) are sources of earnings management in securitization.

The evidence from these studies is drawn mainly from tests that use either all or a large portion of firms in the financial industry. For non-financial firms, securitization involves a higher degree of complexity and potentially requires higher transaction costs. Therefore, the trade-off between benefits from earnings management and the actual costs of securitization is ambiguous for non-financial firms. More importantly, based on the evidence showing the existence of earnings management in securitization alone, it is unclear whether the incentive to manage earnings motivates firms to engage in

securitization. To provide insight into this question, I hypothesize that the election to securitize is influenced by the incentive to manage earnings in the current period:

H2: The incentive to manage earnings is positively associated with the likelihood of securitization.

3.2.4 Economic Consequences of Earnings Management in Securitization

In prior studies, earnings management in securitization has been viewed as an undesirable practice. For example, by showing an inverse relationship between the size of securitization gains and the level of (and change in) pre-securitization earnings, Dechow et al. (2009) conclude that managers record securitization gains to inflate earnings. They also indicate that the discount rate assumptions managers employ in the valuation of retained interests are used to derive the desired level of securitization gains or losses. Managers also exercise other forms of discretion over securitization; for example, the timing of the transaction and the selection of assets to be securitized (Karaoglu 2005; Barth and Taylor 2009). Dechow and Shakespeare (2009) find securitizations are clustered towards the quarter end, implying that managers "time" the transactions to materially impact their reported earnings and leverage ratio. In a study of banks, Karaoglu (2005) also concludes that the timing of securitization and the selection of loans to be securitized are examples of earnings management in securitization.

Despite the evidence of earnings management in securitization, it is still unclear whether the presence of earnings management is detrimental to investor welfare. In other words, evidence of earnings management alone is an insufficient basis on which to conclude that managerial discretion over securitization is economically undesirable,

because it destroys the intrinsic value of a firm. For example, recording gains in securitization has a temporary timing effect on income where future income is accelerated to the current period. In the long run, however, this income acceleration may or may not have any economic impact on the firm's intrinsic value. To understand whether earnings management in securitization is indeed value destructive, I examine firms' investment activities subsequent to securitization transactions. Because securitization creates liquidity that can either mitigate the underinvestment problem or become excessive to the point that encourages overinvestment, an examination of investment activities subsequent to securitization provides insight into the economic consequences of the transactions. Furthermore, I focus specifically on earnings management in the form of recording securitization gains or losses, because that has the most direct influence on current-period earnings, and previous studies have viewed recording securitization income as undesirable.

In the following section, I briefly review existing studies on the economic impact of earnings management. I then summarize studies documenting earnings management in securitization and discuss in detail why evidence showing the existence of earnings management alone is insufficient to conclude the desirability of securitization from an accounting standpoint. The discussion leads to an evaluation of the economic consequence of securitization by examining firms' investment activities subsequent to securitization transactions.

Existing studies show that earnings management destroys shareholder value in many settings. Jensen (2005) suggests that earnings management is often used to meet the market's expectations, even when real long-term value is compromised. The evidence

from studies of real earnings management is consistent with this position: managers are willing to sacrifice real economic value in exchange for the appearance of accounting gains to current earnings. A survey by Graham, Harvey, and Rajgopal (2005) shows that 78 percent of the executives who participated in the study are willing to sacrifice economic value for income smoothing. The executives also feel that their decisions are justified, since penalties from the capital market for negative earnings can be more costly than the losses from engaging in real earnings management. This phenomenon is also empirically documented by studies in various settings.

Bhojraj, Hribar, Picconi, and McInnis (2009) show that firms that barely beat analysts' forecasts, but that have high discretionary accruals and reduced discretionary spending (e.g., R&D and advertising expenses), also experience favorable earnings and stock returns performance in the short term but not in the long run. The timing of stock issuance and insider sales suggests that managers are aware of the stock return pattern, but they are still willing to take certain value-destructive actions to beat the market's current earnings expectation. Roychowdhury (2006) finds that to avoid reporting losses, managers take various actions, such as reducing prices to accelerate sales and overproducing to report lower cost of goods sold. Bushee (1998) finds that whether managers are willing to sacrifice long-term economic value for short-term accounting earnings depends on a particular firm's institutional ownership. Firms with a large proportion of ownership by transient institutional investors are more likely to cut R&D expenses to reverse a decline in earnings.

Although empirical evidence suggests that, in many settings, earnings management destroys shareholder value, the link between earnings management in

securitization and its economic impact on firm value is still ambiguous. The accounting treatment of securitization permits an immediate recognition of accounting gains (losses) when the originator retains a portion of the securitized assets and sells the rest at higher (lower) prices than their carrying value. The recognition of gains or losses essentially reflects fair value change in the assets, regardless of whether they are securitized or kept on the originator's balance sheet. Although the accounting process accelerates the recognition of gains or losses on securitized assets, a securitization transaction itself does not trigger any economic gains or losses. For example, if the fair value approach is used to measure securitized assets, then any gains and losses associated with the assets would be recognized as they occur, instead of when a securitization transaction takes place (Barth and Taylor 2009).

Therefore, evidence on gain or loss recognition in securitization alone is insufficient to show conclusively whether earnings management is economically undesirable. To evaluate the desirability of earnings management in securitization, I examine the link between the presence of earnings management and the economic outcome of securitization (i.e., the uses of securitization proceeds and how that impacts firm value). For securitization motivated by earnings management to be considered undesirable, it must be unfavorable from the shareholders' perspective. Accordingly, one direct way to evaluate whether earnings management in securitization is indeed detrimental to investor welfare is to examine whether the use of securitization proceeds is in the best interests of the shareholders. If securitization is motivated merely by the intent to manage earnings without any real economic demands for liquidity, then the extra cash proceeds from securitization is likely to be wasted. The free cash flow hypothesis

suggests that excess liquidity can destroy shareholder value (Jensen 1986; Stulz 1990) due to the agency problems it creates. Excessive cash holdings reduce pressure on management to spend cash efficiently, for example, by minimizing production costs and monitoring productivity (Dittmar and Mahrt-Smith 2007). Firms with excess liquidity are subject to a more severe agency problem (Jensen 1986) in that equity holders prefer surplus cash to be paid out as dividends rather than being stockpiled by the firm. On the other hand, managers are motivated to retain excess cash to increase resources under their control, to pursue (suboptimal) corporate growth, and to avoid monitoring by the capital market. For example, Brealey and Myers (2000) find that managers have strong empire-building incentives, which are not necessarily in the best interests of shareholders. The free cash flow hypothesis thus predicts managers would prefer to engage in suboptimal investments rather than distribute excess cash to shareholders. Consequently, excess liquidity encourages overinvestment.

Based on this discussion, finding an association between earnings management in securitization and the level of overinvestment subsequent to securitization would suggest that earnings management is indeed undesirable from an economic standpoint. On the other hand, if this relationship is not supported by empirical evidence, it is reasonable to argue that securitization can be efficient overall, despite the presence of earnings management. Accordingly, I hypothesize that:

H3: The presence of earnings management in securitization is associated with the level of overinvestment consequent to securitization.

3.3 Methodology

3.3.1 Liquidity and Earnings Management

Motivations for Securitization

The first two hypotheses investigate liquidity demand and earnings management incentive as the motivations for securitization. First, I pair a sample of securitization transactions with a sample of non-securitization firm-year observations by matching on firm size and industry. The matching procedure using the firm size (i.e., total asset) is important because it controls not only for the general size effect, but also for the relationship between firm size and the likelihood of engaging in securitization due to its fixed transaction costs (Lemmon et al. 2009). I use two-digit SIC codes to identify the industry to which a firm belongs. To model the securitization decisions, I estimate a logistic regression using liquidity demand and the incentive for earnings management to predict the likelihood of securitization. The base model is specified as follows:

$$SECURITIZATION_{i,t} = \alpha + \beta_1 CASH^{\varepsilon}_{i,t-1} + \beta_2 EM_{i,t} + \beta_i ControlVariables_{i,t-1} + \varepsilon_{i,t}. \quad (1)$$

The dependent variable, SECURITIZATION, is an indicator variable that equals one for securitization transaction and zero otherwise. I use the deviation of cash holdings from their optimal level ($CASH^{\varepsilon}$) in the year prior to securitization to capture a firm's pre-securitization liquidity demand (i.e., the extent of the underinvestment problem). The cash holdings model from Opler et al. (1999) is used to estimate the optimal level of cash holdings. Based on the notion of static trade-off (i.e., costs and benefits of cash holdings) and the financing hierarchy theory (Myers and Majluf 1994), the model incorporates a number of explanatory factors that determine the level of liquid assets (i.e., cash and

short-term investment) that a firm should hold. Liquidity demand is the negative difference between the actual level of cash holdings and the predicted (optimal) level of holdings.

3.3.1.1 Estimation of Abnormal Cash

I specify the cash model to estimate the level of cash holdings incorporating the variables used in Dittmar and Mahrt-Smith (2007) and Foley, Hartzell, Titman, and Twite (2007) as follows:

$$\ln CASH_{i,t} = \alpha + \beta_1 \ln NA_{i,t} + \beta_2 CF_{i,t} + \beta_3 NWC_{i,t} + \beta_4 IndustrySigma_{i,t} + \beta_5 MV_{i,t} + \beta_6 CAPX_{i,t} + \beta_7 RD_{i,t} + \beta_8 LEVERAGE_{i,t} + \beta_9 DIV_{i,t} + YearDummies + FirmFixedEffect + \varepsilon_{i,t}. \quad (2)$$

The above model is estimated using all firms from the Compustat universe over the sample period.[13] The dependent variable, CASH, includes cash and short-term investment. To avoid the potential problem caused by a skewed distribution, the dependent variable is measured using its natural logarithm, and the variable CASH is set to the sample minimum when it equals 0.

The first independent variable, the natural logarithm of NA (net assets), is the book value of total assets net of CASH. It measures firm size in terms of a firm's assets in place. The static trade-off view predicts a negative association between firm size and

13. Variables definition (Compustat Xpressfeed item name in parentheses): CASH = Cash and Short-Term Investments (CHE); NA = Net Assets defined as Total Assets (AT) minus Cash and Short-Term Investments (CHE); CF = Cash Flow defined as Operating Income Before Depreciation (OIBDP) minus Interest Expense (XINT) and Income Taxes (TXT); NWC = Net Working Capital defined as Current Assets (ACT) minus Current Liabilities (LCT) minus Cash (CHE); IndustrySigma = industry average of the standard deviation of CF/NA over the past 10 years; MV = Market Value of Equity defined as Price (PRCC) times Shares Outstanding (CSHO); CAPX = Capital Expenditure (CAPX); RD= R&D Expense (XRD); LEVERAGE = The sum of Long Term Debt (DLTT) and Debt in Current Liability (DLC) divided by Net Assets (NA); and DIV = 1 if Cash Dividend (DV) is greater than zero and 0 otherwise.

liquid asset holdings due to economies of scale. In contrast, the financing hierarchy theory suggests that larger firms are more liquid because they are more successful. NA is also used as a scaling variable in the regression. CF indicates operating cash flow, and it should be positively related to CASH. NWC (net working capital) is used to measure liquid asset substitutes, and it is expected to be negatively correlated with CASH. IndustrySigma is the industry average of the standard deviation of the operating cash flow over the last ten years. It is included in the regression to control for the volatility of an industry's cash flow. IndustrySigma is expected to be positively correlated with CASH, because firms with higher unexpected cash outlays tend to hold more liquid assets.

MV is the market value of equity. When market value is scaled by net assets, the variable becomes the market-to-book ratio that captures a firm's investment opportunities. In general, high growth firms are expected to hold higher liquidity. On the other hand, firms with poor investment opportunities experience more difficulty in obtaining external financing and thus have higher needs for liquid assets. Furthermore, low market-to-book firms are subject to higher agency costs from managerial discretion; therefore, are expected to hold more liquid assets. Accordingly, the relation between market-to-book and CASH is ambiguous. Similar to the market-to-book ratio, capital expenditure as a percentage of net assets (CAPX) is included as another proxy for growth opportunities. RD represents research and development expenses. Firms with higher R&D expenses are subject to more severe information asymmetry between managers and shareholders, making issuing equity more costly, potentially prohibitively so (Opler et al. 1999). Hence, high R&D firms tend to hold a higher level of liquidity buffer.

I include leverage (LEVERAGE) as the sum of current and long-term debts as a percentage of net assets. According to the financing hierarchy model, leverage decreases as a firm accumulates internal fund. On the other hand, the agency cost of debt suggests that raising additional capital is more difficult and expensive for highly leveraged firms. Therefore, a firm with high leverage may choose to hold more cash to avoid the cost of being short of funds. Thus, the directional association between CASH and LEVERAGE is unclear. DIV is an indicator variable that equals 1 if a firm pays a dividend in a given year and 0 otherwise. Opler et al. (1999) show that dividend-paying firms are expected to hold less cash, because they have easier access to the capital market. Finally, because some firms may consistently hold excess cash for economic reasons, the regression estimation controls for firm fixed effects (Dittmar and Mahrt-Smith 2007).[14]

The fitted value from equation (2) is the predicted level of CASH. The residual ($CASH^{\varepsilon}$) estimated from this model represents the difference between the actual level of cash holdings and the predicted level. A positive value of $CASH^{\varepsilon}$ indicates excess liquidity, whereas a negative value represents a liquidity constraint. Thus, a negative $CASH^{\varepsilon}$ indicates that a firm's level of cash holdings is insufficient to meet its liquidity needs, and thus suggests the potential underinvestment problem. The demand for liquidity increases as the $CASH^{\varepsilon}$ variable decreases. Accordingly, the $CASH^{\varepsilon}$ variable in equation (1) is expected to have a negative coefficient if liquidity demand is associated with the decision for securitization.

14. I also estimate the cash model in equation (2) using the Fama-MacBeth approach instead of the fixed effect approach as suggested by Opler et al. (1999).

3.3.1.2 Estimation of Earnings Management Incentive

The second independent variable, Earnings Management Incentive (EM), in equation (1) captures the incentive to manage earnings in securitization.[15] I define EM as the difference between "pre-managed" earnings and the earnings benchmark:

$$EM_{i,t} = PM\_Earnings_{i,t} - EXP\_Earnings_{i,t-1}, \quad (3)$$

where EXP_Earnings is the earnings benchmark measured using income before extraordinary items scaled by lagged total assets at time t-1. To calculate "pre-managed" earnings (PM_Earnings), I adjust the reported actual earnings at time t to exclude discretionary accruals and any securitization gains or losses:[16]

$$PM\_Earnings_{i,t} = Reported\ Earnings_{i,t} - Discretionary\ Accruals_{i,t} - Securitization\ Gains\ /Losses_{i,t} \quad (4)$$

I use the cross-sectional modified Jones model to estimate the signed discretionary accruals[17]:

$$TA_{i,t} = \alpha(1/Assets_{i,t-1}) + \beta_1(\Delta SALES_{i,t} - \Delta AR_{i,t}) + \beta_2 PPE_{i,t} + \varepsilon_{i,t} \quad (5)$$

The signed total accruals (TA) variable is regressed on the change in sales (ΔSALES) minus the change in Accounts Receivables (ΔAR) and the level of property, plants, and equipment (PPE). TA is defined as the change in non-cash current assets minus the change in current liabilities (excluding the current portion of long-term debt) and depreciation and amortization expenses. ΔSALES is the change in sales, and ΔAR is the change in accounts receivable. PPE is the gross property, plants, and equipment. All

15. I use the signed EM and the absolute value of EM in the regression analysis.

16. Reported earnings = Income before Extraordinary Items (IB) / lagged Total Assets

17. I also use the Jones model and the modified Jones model adjusted for ROA to estimate discretionary accruals in sensitive tests.

variables are scaled by lagged total assets.[18] Equation (5) is estimated with all firm-year observations from the Compustat universe from the period of 2000 to 2009. The residual from the regression model is the signed discretionary accruals.

Next, I subtract (add) positive (negative) discretionary accruals from reported earnings for all firms. For securitization firms, I also remove the securitization effects by deducting securitization gains from or adding back securitization losses to reported earnings.

3.3.1.3 Control Variables

I include control variables in equation (1) to isolate the firm characteristic effects on the likelihood of securitization. I include firm size measured by the log of total assets because, given the transaction costs and complexity involved, larger firms are more likely to engage in securitization than smaller firms. Market-to-book ratio is included to capture a firm's growth, because fast-growing firms are likely to have greater liquidity demand. I also include leverage as a control variable, because highly leveraged firms are more likely to use securitization as a source to raise capital. I follow Richardson (2006) to measure leverage as the sum of the book value of short-term and long-term debt scaled by the sum of the book value of total debt and common equity. Finally, I include current and long-term receivables as a percentage of total assets. The percentage of receivables is expected to be positively related to the likelihood of securitization. I estimate the regression model

18. Variables definition (Compustat Xpressfeed item name in parentheses): TA = [ΔTotal Current Assets (ACT) - ΔCash and Short-Term Investments (CHE) – ΔTotal Current Liabilities (LCT) + ΔTotal Debt in Current Liabilities (DLC) - Depreciation and Amortization (DP)] / lagged Total Assets (AT); ΔSALES - ΔAR = [ΔNet Sales/Turnover (SALE) - ΔAccounts Receivable (RECT)] / lagged Total Assets (AT); PPE = Total (gross) Property, Plant, Equipment (PPEGT) / lagged Total Assets (AT).

controlling for fixed industry and year effects. All control variables are measured in the year prior to securitization.

3.3.2 Economic Consequences of Earnings Management in Securitization

The third hypothesis investigates the economic consequence of earnings management in securitization. Specifically, I examine the association between the propensity to manage earnings in securitization and firms' investment activities in the periods subsequent to securitization transactions:

$$I^{\varepsilon}_{NEWi,t \text{ or } t+1} = \alpha + \beta_1 FCF{<}0_{i,t} + \beta_2 FCF{>}0_{i,t} + \beta_3 SecEM\_M_{i,t} + \beta_4 SecEM\_B_{i,t} + \varepsilon_{i,t} \quad (6)$$

I use the investment model from Richardson (2006) to estimate the abnormal level of investment (I^{ε}_{NEW}) in the periods subsequent to securitization. I also include free cash flow variables in the model as control variables, because Richardson (2006) has shown that free cash flow is highly associated with the level of abnormal investment.[19] SecEM_M and SecEM_B are proxies that capture the propensity of earnings management in securitization.

3.3.2.1 Estimation of Abnormal Investment

Richardson's (2006) investment model starts with a decomposition of total investment expenditure (I_{TOTAL}) into three components: investment to maintain existing

19. Free cash flow (FCF) is calculated as free cash flow from existing assets in place (CFAIP) minus free cash flow from growth opportunities (I*NEW). CFAIP is the sum of net cash flow from operating activities (data item OANCF), maintenance investment expenditure (data item DPC), and research and development expenditure (data item XRD). I^{*}_{NEW} is the expected level of investment measured using the predicted value from equation (7). Following Richardson (2006), I divide FCF into two variables based on the sign of free cash flow to allow an asymmetry relationship between abnormal investment and free cash flow.

assets in place ($I_{MAINTENANCE}$), expected investment on new projects (I^{*}_{NEW}), and over-(under-) investment on new projects (I^{ε}_{NEW}). Total investment is defined as the total of capital expenditure, R&D expenses, acquisitions, and the sale of property, plants, and equipment. Amortization and depreciation are used as a proxy for $I_{MAINTENANCE}$. The difference between I_{TOTAL} and $I_{MAINTENANCE}$ represents new investments (I_{NEW}). All variables are expressed as a percentage of total assets. The next step is to estimate a regression model that decomposes new investments (I_{NEW}) into an expected component (I^{*}_{NEW}) and an abnormal component (I^{ε}_{NEW}). A positive I^{ε}_{NEW} value indicates overinvestment while a negative I^{ε}_{NEW} value indicates underinvestment. The model to decompose total new investments (I_{NEW}) is specified as follows:

$$I_{NEW,\,i,t} = \alpha + \beta_1 V/P_{i,t-1} + \beta_2 LEVERAGE_{i,t-1} + \beta_3 CASH_{i,t-1} + \beta_4 AGE_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 StockReturns_{i,\,t-1} + \beta_7 I_{NEW,\,i,t-1} + \sum Year\ Indicator + \sum Industry\ Indicator + \varepsilon_{i,t} \quad (7)$$

The dependent variable, I_{NEW}, is the difference between total investment and the investment required to maintain existing assets in place, as defined above. V/P is a measure of a firm's growth opportunities, with V representing the value of assets in place indicated by current book values and current earnings and P reflecting a firm's market value. V/P is an inverse of growth and, therefore, should be negatively related to I_{NEW}. LEVERAGE is the total of current and non-current debts scaled by the sum of total debt and the book value of common equity. Highly leveraged firms invest less when they face potential bankruptcy costs and are constrained in raising capital; therefore, I_{NEW} is expected to decrease with the level of leverage. CASH includes cash and short-term investments scaled by total assets. AGE represents firm age as indicated by the number of

years a firm has been listed on CRSP. SIZE is firm size measured by total assets. The level of cash and firm size are expected to be positively associated with I_{NEW}, since the difficulty of obtaining external financing decreases with these two variables. Stock Returns is the return over the most recent fiscal year. It captures growth opportunities beyond those reflected in V/P and should be positively related to I_{NEW}.[20] The fitted value estimated from the above model is the expected level of new investment (I^{*}_{NEW}) and the residual is the level of over- or under-investment (I^{ε}_{NEW}).

3.3.2.2 Proxies for Earnings Management in Securitization

Dechow et al. (2009) use the association between securitization gains (or losses) and pre-securitization income to capture earnings management. Their intuition is that firms are likely to record higher securitization gains when pre-securitization earnings are low or the changes in pre-securitization earnings are more negative. Furthermore, the income smoothing argument of earnings management suggests that firms also have an incentive to record securitization losses when pre-securitization earnings are higher than the earnings benchmark. Since the definition of earnings management is subjective, I employ three different approaches to measure earnings management in securitization. For each approach, I separate the cases where pre-securitization earnings miss or meet the earnings benchmark (SecEM_M) from the cases where pre-securitization earnings beat

20. Variables definition (Compustat Xpressfeed item name in parentheses): INEW = Capital Expenditure (CAPX) + R&D expense (XRD) + Acquisitions (AQC) + Sale of Property, Plant and Equipment (SPPE) - Amortization and Depreciation (DPC); V/Pt-1 is the ratio of value of assets in place to market value, where $V = (1 - \alpha r)BV + \alpha(1 + r)X - \alpha rd$ (In this equation, BV is the book value of common equity, X is earnings, d is dividends, r is the discount rate assumed to be 12%, α is calculated as $\omega/(1+ r- \omega)$ where ω is the persistence parameter equals to 0.62 as reported in Dechow et al. (1999)); LEVERAGEt-1 = [Current Debt (DLC) + Long-Term Debt (DLTT)] / Book Value of Common Equity (CEQ); CASHt-1 = Cash and Short-Term Investments(CHE) / Total Assets (AT); AGEt-1 is the natural logarithm of the number of years a firm is on CRSP; SIZEt-1 = the natural logarithm of Total Assets (AT); and Stock Returnst-1 is the returns over the prior year.

the benchmark (SecEM_B). I define earnings benchmark as the income before extraordinary items in the period prior to securitization.

The first set of proxies for earnings management in securitization assumes that earnings management is undertaken to inflate reported earnings. Accordingly, I define securitization gains as earnings management and securitization losses as the absence of earnings management. I set SecEM_M equal to 1 if a firm reports a securitization gain and its pre-securitization income misses or meets the earnings benchmark and 0 otherwise. Similarly, I set SecEM_B equal to 1 if a firm reports a securitization gain but its pre-securitization income beats the benchmark and 0 otherwise. The intercept therefore captures the cases of reported securitization losses, regardless whether pre-securitization earnings miss, meet, or beat the benchmark.

The second specification follows strictly the logic of income smoothing and defines earnings management in terms of the cases in which post-securitization earnings are closer to the benchmark than pre-securitization earnings (i.e., the absolute value of post-securitization unexpected earnings is smaller than that of pre-securitization unexpected earnings). Thus, SecEM_M is 1 if a "miss firm" reports a post-securitization income that is closer than its pre-securitization income to the benchmark and 0 otherwise. SecEM_B equals 1 if a "beat firm" reports post-securitization income that is closer than pre-securitization income to the benchmark and 0 otherwise. When pre-securitization earnings meet the expectation, post-securitization earnings are always further away from the benchmark, regardless of whether gains or losses are reported. In this case where no further income smoothing is needed, SecEM_M and SecEM_B both default to 0.

The last specification is a combination of the first and the second, and it accounts for both earnings inflation and income smoothing. I define earnings management in securitization as follows: 1) when a firm misses or meets earnings expectation and records a securitization gain in order to move earnings upward and closer to or above its earnings benchmark (i.e., earnings inflation), and 2) when a firm beats its earnings expectation and records a securitization loss in order to move earnings downward and closer to, but not below, the benchmark (i.e., income smoothing). Following this logic, I set SecEM_M equal to 1 if a "miss or meet firm" records a securitization gain and 0 otherwise. SecEM_B equals to 1 if a "beat firm" records a securitization loss that has an absolute value less than the unexpected earning and 0 otherwise. The intercept captures the absence of earnings management where: (1) a "miss or meet firm" records a securitization loss, (2) a "beat firm" records a securitization gain, and (3) a "beat firm" records a securitization loss that is large enough to move earning below its benchmark.

In all three specifications, both SecEM_M and SecEM_B are expected to be positively correlated with INEW if the level of abnormal investment increases with the propensity to manage earnings in securitization.

3.4 Sample and Descriptive Statistics

The empirical tests employ data from three sources. I obtain a sample of securitization firms by screening all of the 10-K filings made with the SEC by industrial firms during the period from January 2001 through December 2009. Industrial firms include all public firms except those in the utility industry (with SIC between 4900-4999) and financial industry (with SIC between 6000-6999). To identify whether a firm has securitization activities, I first search each firm's 10-K filing for keywords such as

"securitization" and "securitized." The initial screening returns 3,040 firm-year observations. Next, I manually review each 10-K filing to confirm that the firms engaged in securitization. That review yields a total of 1,164 securitization firm-year observations. Based on the information disclosed in the 10-Ks, I determine whether a securitization transaction accounted for a true sale (without consolidation), a sale with consolidation, or secured borrowing. From 10-K filings, I also collect information about securitization proceeds, when available, and securitization gains or losses. I obtain additional financial statement data concerning stock returns and firm age from Compustat and CRSP. Table 1 presents the sample determination for each of the main tests. The empirical tests are performed using the maximum number of observations available.

Table 2 illustrates the industry distribution for the securitization sample. The sample size decreases to 1,148 firm-year observations, with 248 unique firms, due to data availability. Securitization firms do not concentrate in only a few non-financial industries, indicating that industry bias is not likely to influence empirical tests. Within the total sample of securitization transactions, 633 transactions are reported as sale transactions, 384 transactions are secured borrowings, and 131 transactions are sales with consolidation of SPE.

To obtain a sense of securitization firms' characteristics, I compare securitization firms to the Compustat population (results are untabulated). In general, the average securitization firm is larger than the average Compustat firm, in both total assets and the market value of equity. Average securitization firm holds less cash relative to total assets than Compustat firm. Growth measured by the market-to-book ratio is similar between securitization firm and Compustat firm. Securitization firms are more heavily leveraged

than Compustat firm. Securitization firms also have higher earnings before extraordinary items but have lower returns on assets, indicating that securitization firm is less efficient than Compustat firm in using assets to generate earning. Finally, securitization firm has similar level of receivables relative to total assets to Compustat firm.

Table 3 Panel A presents descriptive statistics comparing 916 securitization transactions to their matched non-securitization firm-year observations. The securitization sample consists of transactions reported as sales of receivables, secured borrowings, and sales with the consolidation of SPEs. All variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers. Abnormal cash ($CASH^{\varepsilon}$) captures firms' level of liquidity prior to securitization. The first measure of abnormal cash is estimated using the fixed-effect approach. The mean (median) $CASH^{\varepsilon}$ is 0.699 (0.802) for the securitization sample and 1.180 (1.339) for the non-securitization sample. It appears that both groups hold more cash than required in the year prior to securitization. Securitization firms hold less excess cash than non-securitization firms; with a -0.481 difference in the mean value of $CASH^{\varepsilon}$ between the two groups. This difference is statistically significant at the 1 percent level as indicated by the t-test and the Wilcoxon Z test statistics.

Turning to the abnormal cash ($CASH^{\varepsilon}$) estimated using the Fama-MacBeth specification, the means and medians of $CASH^{\varepsilon}$ for the securitization sample and the non-securitization sample are both smaller than their counterparts from the fixed-effect specification. This finding is not surprising, given that the measurement of abnormal cash from the fixed-effect specification includes the portion of cash that a firm holds due to firm-specific factors beyond economic determinants. Thus, the difference between

$CASH^{\varepsilon}$ estimated from the two specifications implies that firm-specific factors, on average, cause firms to hold more cash than is required for economic reasons.

Comparing $CASH^{\varepsilon}$ between the two samples, I find a difference in the signs of mean and median abnormal cash. The mean (median) $CASH^{\varepsilon}$ is -0.398 (-0.321) for the securitization sample and 0.048 (0.275) for the non-securitization sample. Thus, securitization firms appear to have abnormally low cash in the year prior to securitization, whereas non-securitization firms hold cash in amounts slightly above the normal level. Both t-test and non-parametric test statistics confirm the statistical significance of this finding (p-values < 0.0001). Because I gather the sample of non-securitization firms by identifying a match observation to each securitization firm based on total asset and industry, I also perform paired t-tests and Wilcoxon-signed rank sum tests. These two tests again confirm the statistical significance in the difference between the two samples.

Turning to the earnings management variables, UE_GainsAdj captures earnings management incentive by comparing the "pre-managed" earnings (actual earnings adjusted for discretionary accruals and securitization gains or losses) in the year of securitization to the prior year earnings. The difference in earnings is expressed as a percentage of lagged total assets in UE_GainsAdj. The mean UE_GainsAdj is -0.007 for securitization firms and -0.005 for non-securitization firms. The negative values indicate that the "pre-managed" earnings are below their prior year benchmarks for both groups, and therefore suggest incentives to manage earnings. UE_GainsAdj is slightly more negative for securitization firms (0.2% of the total assets). The median values of UE_GainsAdj are close to zero for both samples.

The absolute value of UE_GainsAdj is used as another measure of earnings management incentives, with the assumption that income smoothing is a form of earnings management. The incentive to manage earnings increases as the absolute value of UE_GainsAdj increases. The absolute values of UE_GainsAdj on average are almost identical between the two samples. The median value, on the other hand, is slightly higher for securitization firms (0.021) than for non-securitization firms (0.018).

The mean (median) market-to-book ratio (MTB) is 2.480 (1.916) for securitization firms and 2.948 (2.270) for non-securitization firms. It appears that the non-securitization sample consists of firms with higher growth than the securitization sample. Securitization firms are, on average, more highly leveraged (0.459) than non-securitization firms (0.383). An average (median) securitization firm holds approximately 17% (15%) of total assets in receivables. In comparison, an average non-securitization firm holds approximately 14% (13%) of total assets in receivables. This is consistent with the idea that firms with higher level of receivables relative to total assets are more likely to engage in securitization.[21]

Overall, Panel A of Table 3 provides preliminary evidence to demonstrate a cross-sectional difference in liquidity as measured by abnormal cash between securitization firms and their matching non-securitization firms. This evidence appears to be consistent with the hypothesis that liquidity demand is related to securitization decisions. Because prior studies have suggested that earnings management is a reason for firms to engage in securitization, it is important to separately examine firms that may record securitization

21. This finding also suggests that an alternate way to identify match sample is to pair firms based on industry and the percentage of total assets in receivables. Because receivables are likely to be volatile for securitization firms, I perform a sensitivity test using match sample identified based on industry and sales in subsequent analysis.

gains or losses to manage earnings (i.e., firms reporting securitization as sales of receivables without consolidating SPEs on the financial statements). Table 3 Panel B presents the descriptive statistics for the sub-sample of sale securitization transactions.

In general, the descriptive statistics for the sub-sample in Panel B are similar to those reported for the full sample in Panel A. Securitization firms hold less abnormal cash the year before securitization than non-securitization firms. The difference is statistically significant at the 1 percent level. Furthermore, the abnormal cash estimated from the Fama-MacBeth regression specification is negative for securitization firms but positive for non-securitization firms. It appears that, without considering the portion of cash firms hold due to firm-specific factors, securitization firms hold abnormally low levels of cash in the year prior to securitization. Non-securitization firms, on the other hand, still hold levels of cash greater than what is predicted by economic determinants.

The mean and median of UE_GainsAdj are negative for both securitization firms and non-securitization firms. The means of UE_GainsAdj are almost identical for the two groups. The average absolute value of UE_GainsAdj is 0.048 for securitization firms and 0.046 for non-securitization firms. Based on the mean and the median values of the earnings management incentive proxies, it appears that incentives for earnings management in securitization are not significantly different between securitization firms and non-securitization firms.

Panel C of Table 3 reports the descriptive statistics for the securitization sample by grouping the firms according to the type of securitization. Over half of the transactions (55%) are reported as sales of receivables (SA firms); 33% of the transactions are reported as secured borrowings (SB firms), and the remaining 12% are reported as sales

with consolidation of SPEs (CON firms). The descriptive statistics for total assets reveal that SA firms are, on average, the largest in size, followed by CON firms and SB firms. CON firms hold, on average the highest level of abnormal cash ($CASH^{\varepsilon}$) among the three groups. The mean of UE_GainsAdj is negative for SA firms and SB firms but positive for CON firms. It appears that CON firms, on average, have the lowest incentive to inflate earnings. SA firms have the highest average market-to -book ratio. Leverage is similar between SA firms and SB firms on average. CON has the lowest leverage among the three groups. The mean receivables, as a percentage of total assets, is highest for CON firms, followed by SB firms and SA firms.

3.5 Results: Motivations for Securitization

3.5.1 Liquidity Demand and Securitization

The first hypothesis predicts that liquidity demand motivates firms to engage in securitization. To test this hypothesis, I estimate a multivariate logistic regression of the likelihood of securitization on abnormal cash (a proxy for liquidity demand) while controlling for other determinates of securitization. Abnormal cash is the difference between a firm's actual cash holdings and the normal level of cash holdings estimated using a number of economic determinants in an OLS regression (Opler et al. 1999).

I estimate the cash model using two different specifications suggested by prior studies. In the first specification, I include year indicator variables and allow for the firm-fixed effect. Dittmar and Mahrt-Smith (2007) point out that controlling for the firm-fixed effect eliminates the potential bias in the coefficient estimates, because certain firms may consistently hold more cash than reasonably required for economic reasons. The firm-

fixed effect is, however, kept as part of the abnormal cash, because it does not reflect the variation in cash holdings predicted by the economic determinants. [22]

In the second specification, I use the Fama-MacBeth cross-sectional model to estimate the optimal cash regression as suggested by Opler et al. (1999). For this approach, I estimate an independent cross-sectional regression for each year and calculate the average coefficient across years. Thus, the Fama-MacBeth model addresses the problem of serial correlation in residuals when estimating an OLS regression with panel data. I report the cash model results estimated using each of the two specifications in Appendix D.

In general, all variables are statistically significant and most load as expected in each specification. The coefficient on net assets (NA) is negative and statistically significant, consistent with the static trade-off view suggesting that larger firms hold lower levels of liquid assets (CASH) due to economies of scale. As expected, operating cash flow (CF) is positively associated with CASH. Net working capital (NWC) measures liquid asset substitutes and is therefore expected to be negatively correlated with CASH. Contrary to this expectation, the coefficient on NWC is positive and significant in the fixed-effects specification. In the Fama-MacBeth specification, NWC is negatively associated with CASH. Industry Sigma measures the volatility of an industry's cash flow over time and is positively associated with CASH. This is consistent with the expectation

22. Dittmar and Mahrt-Smith (2007) explain this rationale using the hypothetical example of Microsoft's "Bill Gates" effect. In estimating the optimal level of cash Microsoft should hold, it is necessary to control for the "Bill Gates" effect to avoid the potential bias in the coefficients of other economic determinants. Nevertheless, the extra cash that Microsoft holds due to the "Bill Gates" effect should still be considered part of its abnormal cash, because it does not relate to any economic determinants.

that firms in the industries with higher cash flow volatility hold higher levels of liquid assets (CASH).

Market value of equity scaled by net assets (MV) and capital expenditure (CAPX) both capture growth. The coefficients on these two variables are positive and significant, consistent with the notion that high growth firms hold more liquid assets to fund investment opportunities. Firms with high R&D are subject to more severe information asymmetry between managers and outside investors. RD is positively associated with CASH, indicating that high R&D firms hold higher levels of CASH because of the difficulties in raising equity capital due to the information asymmetry problem. The coefficient on LEVERAGE is negative and significant. This is consistent with the financing hierarchy argument that firms rely less on leverage as they accumulates internal funds. DIV is expected to be positively associated with CASH, because dividend paying firms have easier access to the capital market and therefore hold less CASH. The coefficient on DIV is positive in the fixed-effect specification but negative in the Fama-MacBeth specification.

Turning to the main tests of the first hypothesis, Table 4 reports the Pearson correlations between the abnormal cash variables and other variables in the regression model. As expected, abnormal cash estimated using the fixed-effect specification strongly correlates with the value estimated using the Fama-MacBeth specification. The coefficient of 0.92 (p-value < 0.0001) confirms that the two variables capture the same underlying economic construct. The correlations between abnormal cash and earnings management variables when measured in absolute values are statistically significant at the 1 percent level. I do not find the same correlations, however, with the signed earnings

management variables. I provide a more detailed analysis of earnings management later in the study. The abnormal cash variables also positively correlate with total assets and the market-to-book ratio. Larger firms and firms with higher growth potential hold more abnormal cash than smaller firms. I find negative correlations between measures of abnormal cash and leverage and receivables. It is not surprising that heavily leveraged firms hold relatively less excess cash or even lower levels of cash than required. Although the results in Table 4 indicate strong correlations between most of the independent variables, an analysis of variance inflation scores (< 2.5) finds no evidence that the correlations between independent variables cause multicollinearity in the logistic regression models presented in the next sections.

Table 5 presents the results for the primary logistic regression specification of the indicator for securitization on abnormal cash and other control variables. In this specification, abnormal cash ($CASH^{\varepsilon}$) is measured using the residuals estimated by the cash model with year and firm-fixed effects (Opler et al., 1999). The results are based on the full sample, which includes securitization transactions reported as sales of receivables, secured borrowings, and sales with consolidation of SPEs. Columns 1 through 3 report the maximum likelihood results from the base model. Columns 4 and 5 extend the base model by including industry and year indicator variables to mitigate the unobservable difference across industries and years. The likelihood ratio test indicates that the base model has significant power, with chi-square statistics of 138.242 (p-value <0.0001). The percent concordant statistic indicates that, of all possible pairs of the sample firms, the model correctly classifies 64% of the pairs into their respective groups.

The first column presents coefficients and p-values for the variables in the base model. Consistent with the first hypothesis, I find a significantly negative association between $CASH^{\varepsilon}$ and the likelihood of securitization (p-value < 0.001). To give some economic interpretation of the strength of this relationship, I report in Column 2 the marginal effect of each independent variable, which is calculated by multiplying the estimated coefficient by the logit density function, evaluated at the sample means of the independent variables. In Column 3, I also report the change in the probability of securitization given a change in the independent variable over the interquartile range. For every one-unit increase in $CASH^{\varepsilon}$, the predicted probability of securitization reduces by 5.7 percent. Alternatively stated, a reduction in the value of $CASH^{\varepsilon}$ from the 75th percentile to the 25th percentile increases the probability that a firm will engage in securitization by 11.8 percent. Thus, the effect of abnormal cash on the likelihood of securitization appears to be both statistically and economically significant.

Turning to the results for control variables, all variables load as expected and are statistically significant at the 1 percent level, except the market-to-book ratio. The coefficient on ASSETS is positive and significant, suggesting that larger firms are more likely to engage in securitization, perhaps because economies of scale created by fixed transaction costs make it more feasible for larger firms to engage in securitization (Minton, Opler, and Stanton 1997). A change in ASSETS from the 25th percentile to the 75th percentile increases the probability that a firm will engage in securitization by 8 percent. A significant positive coefficient on LEVERAGE indicates that firms with relatively more debt are more likely to choose securitization as a means of raising capital. The positive effect of RECEIVABLES on securitization is expected, because

securitization firms must have sufficient securitizable assets in the year prior to securitization transactions. Contrary to prior expectations, the coefficient on the market-to-book ratio suggests that high-growth firms are less likely than low-growth firms to engage in securitization. However, the economic significance of this relationship is relatively small; an increase in market-to-book ratio over its interquartile range corresponds to only a 1.8 percent decrease in the probability of securitization.

In Columns 4 and 5 of Table 5, I repeat the analysis, adding indicator variables for industry membership and temporal effects to the base model. Inclusion of industry and year fixed effects in the model is intended to capture additional variations in the likelihood of securitizations that are not explained by abnormal cash and other control variables in the base model. This specification leads to identical signs and similar statistical significance of the coefficients as the base model. The coefficient on $CASH^{\varepsilon}$ confirms the previous finding: the likelihood of securitization increases as the level of abnormal cash decreases. So far, the results from both specifications provide strong support for liquidity demand as a motivation for securitization.

At first glance, the findings in Table 5 may seem obvious in particular for transactions that are recorded as secured borrowings or sales with consolidation of SPEs. For these firms in particular, securitization provides little benefit other than providing cash proceeds that mitigate underinvestment problems. Thus, it is more interesting to examine only the transactions that are reported as sales of receivables. Recording securitizations as sales gives firms opportunities to also recognize securitization gains or losses, which prior studies have shown as a way to manage earnings. Table 6 presents the results for this subsample. The coefficient on the key variable, $CASH^{\varepsilon}$, remains negative

and significant. $CASH^{\varepsilon}$ also has the same marginal effect on the probability of securitization. The coefficient on the market-to-book ratio becomes insignificant in explaining the likelihood of securitization. The coefficients on all other control variables have the expected signs and statistical significance. These results confirm that the association between liquidity demand and the likelihood of securitization is not merely driven by firms with a more obvious liquidity motive for securitization (i.e., firms record securitization transactions as secured borrowings and sales with consolidation of SPEs). Despite evidence of earnings management in securitization documented in prior studies, liquidity demand is a strong securitization motive for securitization firms in general and for firms with opportunities to manage earnings with securitization gains or losses.

Within the 504 securitization transactions in the subsample reported in Table 6, there are 72 transactions with securitization gains, 197 transactions with securitization losses, and 235 transactions with zero securitization income. As an additional test (untabulated), I investigate whether the effect of liquidity demand on the likelihood of securitization is different between the transactions with securitization gains and the transactions without securitization gains. This comparison is important because among all firms, transactions with securitization gains are most likely to have used securitizations as an earnings management tool. In other words, liquidity demand may have a muted effect on the likelihood of securitization in the presence of a strong propensity to manage earnings. To test this possibility, I include in the logistic regression an interaction term between abnormal cash and an indicator variable for whether securitization gains are reported. I find that the coefficient on $CASH^{\varepsilon}$ alone remains negative and statistically significant (p-value < 0.0001). The coefficients on the indicator variable for securitization

gains and the interaction term are both insignificant in explaining the likelihood of securitization (p-value = 0.609 and p-value = 0.498, respectively). Thus, the results for the interaction term indicate that whether securitization gains are reported does not affect the association between liquidity demand and the likelihood of securitization. Those results also imply that even though recording gains in securitization potentially affords managers opportunities to inflate earnings, liquidity demand remains a strong motivation for securitization.

Next, I examine whether the effect of liquidity on the likelihood of securitization, as documented in Tables 5 and 6, is robust to an alternative measure of abnormal cash. I estimate the key variable, $CASH^{\varepsilon}$, using annualized regressions, following the approach of Fama-MacBeth. As discussed above, the Fama-MacBeth approach mitigates the problem of serial correlation in an OLS regression where the residuals present abnormal cash ($CASH^{\varepsilon}$). Unlike the fixed effect approach, this estimation of $CASH^{\varepsilon}$ also excludes the portion of cash a firm holds due to firm-specific factors.

The results are reported in Tables 7 and 8. In general, the findings are consistent with those reported in Tables 5 and 6. In both the full sample and the sub-sample of securitization firms with sale accounting, $CASH^{\varepsilon}$ is negatively associated with the likelihood of securitization (p-value < 0.0001). The coefficient magnitude of $CASH^{\varepsilon}$ is also similar. Specifically, an interquartile change in the value of abnormal cash reduces the probability of securitization by 9.8 percent for the full sample and 10.5 percent for the sub-sample. All other independent variables, with the exception of market-to-book ratio, have coefficients with predicted signs and significant power to explain the likelihood of

securitization. These results show that the findings are robust to alternate measure of abnormal cash.

It is possible that how often a firm engages in securitization influences the association between liquidity demand and the likelihood of securitization. For firms with frequent securitization transactions, securitization may be a standard company policy. For example, Peabody Energy Corporation indicated in their 10-K filings that as part of their normal course of business, the firm established a program to securitize their trade receivables for the period from 2000 through 2007. Thus, a high frequency of securitization may be an indication that immediate liquidity demand (i.e., abnormal cash measured in the year prior to securitization) is not a primary reason for securitization. Conversely, frequency of securitization may be an indication of a firm's reliance on securitization as a source of liquidity. Therefore, frequency of securitization can either bias against or toward the association between $CASH^{\varepsilon}$ and the likelihood of securitization.

To address this concern, I control for the frequency of securitization in the logistic regression models. In Table 9, panel A reports the securitization frequency for each unique firm in the securitization sample over the ten-year sample period. Close to 50% of the firms complete one to three transactions over the ten-year period. The number of firms in each frequency category, in general, diminishes as the number of transactions increases; except in the eight transactions category, there are 36 unique firms. Only one firm completes securitization for each of the ten years. Panel B presents the descriptive statistics for abnormal cash in each frequency category. It does not appear that the values of abnormal cash follow any specific distribution patterns according to the frequency of

securitization, except that the value of abnormal cash is much smaller in the seven transactions category than in other categories.

Table 10 reports the results from the logistic regression for securitization on abnormal cash while controlling for the frequency of securitization. Because the effect of frequency on the relation between liquidity demand and securitization is not likely to vary across each of the frequency categories, I use an indicator variable instead of a continuous variable to capture this effect. Accordingly, I set FREQ to 1 if a firm has 4 transactions or more and 0 otherwise. I also include an interaction term between $CASH^{\varepsilon}$ and securitization frequency to capture the effect of securitization frequency on the association between liquidity demand and the likelihood for securitization.

Consistent with the results reported in prior sections, the coefficient on $CASH^{\varepsilon}$ is negative and significant, although the coefficient magnitude decreases slightly. The variable FREQ alone has no significant explanatory power for the likelihood of securitization, which is not surprising, given that this indicator variable is set to 0 for approximately 50% of the observations and set to 1 for the other 50%. Although the choice of cut-off point used in generating the variable FREQ is arbitrary and biases against finding a significant coefficient on FREQ alone, the choice should not introduce bias to testing the association between securitization and the interaction term between $CASH^{\varepsilon}$ and FREQ. I find that the frequency of securitization has no statistical significance for explaining the relation between abnormal cash and the likelihood for securitization. In other words, regardless of the intensity of a firm's securitization activity, the likelihood of securitization increases as the level of abnormal cash decreases.

As an additional test, I exclude the retail industry from the initial securitization sample. The reason for this additional test is that certain securitization transactions in the sample are conducted by financial institutions that are consolidated subsidiaries of non-financial firms. Including that type of transaction in the sample raises a concern that differences in firm characteristics between industrial firms and financial institutions may influence the research design and, thus, bias the empirical findings. For example, financial institutions are subject to more strict regulatory requirements than industrial firms. However, from the 10-K filings alone, it is impossible to perfectly identify all transactions conducted by subsidiary financial institutions without conducting an extensive review of the parent/subsidiary relationship for all firms in the sample.[23]

To mitigate this concern, I exclude firms from retail industries because retail firms are more likely to have subsidiary financial institutions for their private-label credit card activities. The results of this analysis are reported in Table 11. The sample size for securitization firms and their matching firms decreases from 1,832 (1008) to 1,624 (898) for the full sample (sale transaction sample). The coefficient on $CASH^{\varepsilon}$ remains negative and statistically significant. All other control variables, with the exception of market-to-book ratio, load as expected.

Overall, the results from all specifications yield the same conclusion: the level of abnormal cash is inversely related to the likelihood of securitization. The relation is not only statistically significant but also economically significant. These results are consistent with the notion that liquidity demand is a strong motivation for securitization. The finding

23. In the review of 10-K filings, I identified several securitization transactions that are conducted by subsidiary financial institutions. All of these transactions were reported as secured borrowings.

applies to the sample of securitization firms in general and the sample of firms that reported securitizations as sales of receivables. Furthermore, the results are not driven by firms with limited opportunities to manage earnings (i.e., firms reporting zero gains or even losses in securitization). Finally, the results are not sensitive to controlling for industry and temporal effects and the frequency of securitization and are robust to the exclusion of retail industries.

3.5.2 Earnings Management Incentive and Securitization

In the previous analysis, I focus on liquidity demand as a motivation for securitization. Given that prior studies have documented strong evidence supporting the existence of earnings management in securitization, I further explore whether incentives for earnings management also provide motivation for securitization. It is important to note that ex-post evidence of earnings management in securitization does not necessarily imply that ex-ante incentives to manage earnings motivate firms to engage in securitization. Thus, the earnings management proxies I employed in this analysis are derived from unexpected earnings adjusted for discretionary accruals. For securitization firms, I also subtract securitization gains and add securitization losses to derive pre-securitization incomes. I include only sale transactions in the sample for this analysis, because no securitization gains or losses can be recognized for transactions reported as secured borrowings. For transactions reported as sales with consolidation of SPEs, securitization gains or losses have zero net effect on the consolidated income.

Table 12 reports results from regressing the likelihood of securitization on the incentive for earnings management (EM) and other control variables. In the first two columns, I use the signed change in income (Income t – Income t-1, where t is the

securitization year). This approach is based on the assumption that the earning management objective is to inflate earnings. Thus, a negative coefficient on EM would suggest that securitization decisions are influenced by the need to move earnings close to or exceed the prior year's benchmark. I find that although the coefficient on EM is negative, it is not statistically significant (p-value = 0.648). The only change in the significance of control variables between the liquidity test results in Tables 5 through 8 and the current analysis is that ASSETS is no longer significant. In Column 2, I include the industry and time fixed effects. Again, I find that the incentive for earnings management has little to do with the likelihood for securitization.

As an additional untabulated test, I investigate whether the sign of unexpected earnings is related to the likelihood of securitization. There are 248 (256) securitization firms and 237 (267) matching sample firms with positive (negative) unexpected earnings. Given that the number of firms with positive or negative unexpected earnings is similar between securitization firms and the matching sample firms, it is not likely that the sign of unexpected earnings is related to securitization decisions. To confirm this observation, I include an indicator variable in the logistic model to test if firms with positive unexpected earnings (i.e., firms with less incentive to manage earnings) are less likely than firms with negative unexpected earnings (i.e., firms with stronger incentive to manage earnings) to engage in securitization. The coefficient on the indicator variable suggests that association between the sign of unexpected earnings and the likelihood of securitization is also statistically insignificant (p-value = 0.666).

It is possible that manager's objective for earnings management is to smooth earnings rather than to inflate earnings. Income smoothing may be a more valid

assumption given that, in my sample, transactions with securitization losses (197) occur more than twice as frequent as transactions with securitization gains (72). Accordingly, I measure the incentive for earnings management using the absolute value of unexpected earnings. The coefficient of this EM proxy is expected to be positive if managers attempt to report securitization gains or losses to narrow the earnings gap when current period earnings are far from their prior year benchmark. Columns 3 and 4 of Table 12 report results from this specification. In the regressions with and without the industry and year fixed effects, the coefficients on EM are positive but insignificant. Therefore, the incentive to smooth earnings also does not relate to decisions by firms to engage in securitization.

I next investigate whether the insignificant explanatory power of EM is due to the selection procedure of non-securitization firms. Because each non-securitization firm is paired with a securitization firm based on industry and total assets, it is possible that there is little variance in unexpected earnings of the paired firms.[24] Thus, choosing matching non-securitization firms as a benchmark may have influenced the association between earnings management incentive and the likelihood of securitization. To address this concern, I repeat the analysis (untabulated) by comparing securitization firms to all non-securitization firms in the Compustat universe. The sample consists of 504 securitization transactions and 42,639 non-securitization firm-year observations.[25] I find that the

24. The mean (median) of signed unexpected earnings is -0.0084 (-0.0006) for securitization firms and -0.0085 (0.0017) for non-securitization firms.

25. Including RECEIVABLES in the logistic regression causes the problem of quasi-complete separation of data points, which results in unreliable coefficient estimation for RECEIVABLES. Thus, I perform the regression analysis with and without RECEIVABLES.

coefficients on EM remain statistically insignificant. Overall, the results indicate that earnings management incentive is not related to securitization decisions.

Table 13 uses an alternative measure of unexpected earnings. For securitization firms, unexpected earnings are adjusted for discretionary accruals and securitization gains or losses. A large number of firms (125 observations) disclose securitization losses and transaction costs as a single amount in 10-K filings. Therefore, for firms that separately disclose securitization gains or losses and transaction costs, I calculate the total cost of securitization by subtracting (adding) transaction costs from (to) securitization gains (losses). This approach also has intuitive appeal, because it captures the net impact of securitization on earnings. The unexpected earnings adjusted for discretionary accruals and the total or net costs of securitization are, on average, slightly higher than that reported in Table 12. I use the signed unexpected earnings as a proxy for earnings management incentive in the regressions reported in Columns 1 and 2 of Table 13. The coefficients on EM remain insignificant in regressions with and without industry and temporal effects. The results are similar in Columns 3 and 4, where I use the absolute value of unexpected earnings to capture the incentive for earnings management. Collectively, I do not find evidence to support the notion that the incentive for earnings management motivates firms to engage in securitizations.

3.5.3 Interaction between Liquidity Demand and Earnings Management Incentive

Thus far, I have provided strong evidence supporting liquidity demand but not the incentive to manage earnings as a motivation for securitization. I now turn to the analysis of the interaction effect of liquidity demand and earnings management incentives on

securitization decisions. In particular, I investigate whether the association between liquidity demand and the likelihood of securitization is sensitive to the earnings management incentives of firms.

In Table 14, I include abnormal cash and unexpected earnings, along with their interaction term, in the logistic model, where abnormal cash is measured using the fixed effect approach. As predicted, the coefficient on $CASH^{\varepsilon}$ is negative and statistically significant (p-value < 0.0001). The coefficient magnitude (-0.240) is only slightly smaller than that reported in Table 6 (-0.242), where the regression model does not include EM and the interaction between $CASH^{\varepsilon}$ and EM. The marginal effect of abnormal cash on the likelihood of securitization remains the same. Specifically, the probability of securitization increases by 11.7% given an interquartile change in $CASH^{\varepsilon}$ (from the 25th percentile to the 75th percentile). The inclusion of EM and an interaction term does not affect the statistical and economic significance of $CASH^{\varepsilon}$ in predicting securitization decisions. Consistent with the results in previous sections, the coefficient on EM remains insignificant (p-value = 0.225). The interaction effect of $CASH^{\varepsilon}$ and EM also has no significant explanatory power for the likelihood of securitization. Results for control variables are not affected by the inclusion of EM and the interaction term. All control variables, except the market-to-book ratio have expected signs and statistical significance. Column 4 of Table 14 reports the results from regression, controlling for industry and temporal effects. All variable coefficients have the same signs of and statistical significance as those in Column 1.

Table 15 repeats the analysis using the abnormal cash measured with the Fama-MacBeth specification. The results are consistent with those in Table 14. Although the

marginal effect of $CASH^{\varepsilon}$ becomes smaller, it still remains economically significant. Specifically, for a change in $CASH^{\varepsilon}$ from the 25th percentile to the 75th percentile, the probability of securitization is reduced by 9.1%. This marginal effect is similar to the 9.7% reported in Table 7, which includes abnormal cash as the only variable of interest. The coefficients on EM and the interaction term between $CASH^{\varepsilon}$ and EM are both insignificant. Overall, the results from Tables 14 and 15 suggest that liquidity demand, but not the incentive to manage earnings motivates firms to engage in securitizations.

To confirm the robustness of the results, I perform three sets of additional tests (untabulated). The robustness tests are performed on the specification in Table 14 where $CASH^{\varepsilon}$ is estimated from the firm-year fixed effects model. First, I include an indicator variable for the frequency of securitization (FREQ) which is equal to 1 if a firm has 4 securitization transactions or more over the sample period, and 0 otherwise. I also include the interaction between $CASH^{\varepsilon}$ and FREQ and the interaction between EM and FREQ to examine whether securitization frequency influences the association between these two key variables ($CASH^{\varepsilon}$ and EM) and the likelihood of securitization.

I find that the coefficient on $CASH^{\varepsilon}$ remains negative and statistically significant (p-value = 0.09), with the coefficient magnitude reduced to -0.164. Consistent with the results in Table 14, the coefficient on EM remains positive but not statistically significant (p-value = 0.168). The interaction terms between $CASH^{\varepsilon}$ and FREQ and between EM and FREQ have no explanatory power for the likelihood of securitization. The key finding holds when industry and temporal effects are added to the model.

Next, I repeat the analysis in Table 14 excluding securitization transactions by firms in the retail industries. This approach is to address the concern that certain

securitization transactions are conducted by financial institutions that are consolidated subsidiaries of non-financial firms. The sample size decreases from 1008 to 898 firm-year observations. The results generated from this reduced sample are similar to those reported in Table 14. In particular, $CASH^{\varepsilon}$ is negatively associated with the likelihood of securitization (coefficient = -0.26, p-value < 0.0001). The coefficients on EM and the interaction term between $CASH^{\varepsilon}$ and EM are both not statistically significant (p-value = 0.18 and p-value = 0.65 respectively). All other control variables retain the same coefficient signs and statistical significances.

The final robustness test is performed on securitization transactions and a different set of matching sample firm-year observations. The intuition is that firms with high levels of receivables are more likely to securitize, and therefore it seems reasonable to select matching sample firms based on the level of receivables. One drawback of using receivables as a matching criterion is that the level of receivables tends to be volatile for securitization firms. In comparison, the level of sales is relatively stable and it is also correlated with receivables. Accordingly, I select a match sample based on industry and sales.

The findings in Table 14 are not sensitive to the choice of matching criteria. All variables, except RECEIVABLES, retain the same signs and statistical significances in the models with and without the industry and temporal effects. It is not surprising that the coefficient on RECEIVABLES becomes statistically insignificant (p-value = 0.156), given that the matching variable, sales, are highly correlated with the level of receivables. The key variable, $CASH^{\varepsilon}$, is negatively associated with the likelihood of securitization (coefficient = -0.306 with p-value < 0.0001). EM remains not statistically significant in

explaining the likelihood of securitization. Overall, the general finding that liquidity demand is a motivation for securitization is not sensitive to the choice of match sample.

3.6 Results: Economic Consequences of Earnings Management in Securitization

The prior discussion suggests no evidence that the incentive to inflate or to smooth earnings is a motivation for securitization. In the empirical tests, I use various specifications of unexpected earnings to capture earnings management incentives. Although I have found no evidence to support the relation between the ex-ante incentive to manage earnings and securitization decisions, the lack of findings does not contradict the evidence from prior studies (Karaoglu 2005; Dechow and Shakespeare 2009; Dechow et al. 2009) that support the ex-post existence of earnings management in securitization. In other words, the general conclusion that earnings management incentives and securitization decisions are unrelated does not necessarily imply the non-existence of earnings management in securitization. Therefore, I turn to the examination of ex-post existence of earnings management in securitization as suggested by the indicators for earnings management. In particular, I investigate whether securitization transactions with high earnings management propensity encourage overinvestment of cash proceeds in the periods subsequent to the transactions. Through this examination, I provide insight into the question of whether earnings management in securitization is value-destroying and detrimental to investor welfare.

I estimate investment expenditure following the approach in Richardson (2006). The investment model uses a number of variables to predict the normal level of investment expenditure in an OLS regression. The regression residuals capture the

abnormal level of investment (i.e., overinvestment when it is positive and underinvestment when it is negative), which are used as the dependent variable later in the main tests. The regression analysis is performed on all firm-year observations with sufficient data from Compustat and CRSP for the period from 2000 to 2009. Results from the regression model are reported in Column 1 of Appendix E.

Consistent with the prediction, V/P (an inverse measure of growth) and LEVERAGE are negatively related to the investment expenditure (both p-values < 0.0001). High-growth firms invest more, whereas highly leveraged firms have smaller investment expenditures due to constraints on raising capital. The coefficient on CASH is positive and significant, as expected, because firms are more likely to invest when they have sufficient or excess cash. RETURNS captures growth potential beyond what is reflected in V/P and positively correlates with investment expenditures (p-value < 0.0001). Prior period investment expenditure (Inew,t-1) positively relates to investment expenditures in the current period. The coefficient on AGE is not statistically significant. Contrary to the prediction, SIZE is negatively correlated with investment expenditure (p-value < 0.0001). Because CASH, AGE, and SIZE capture different dimensions of firm size, it is possible that the unexpected results are driven by correlations between the variables. Despite this concern, the estimates of abnormal investment expenditure (the regression residuals) are reliable, as evidenced by the similarity of the descriptive statistics to those reported in Richardson (2006).

Column 2 of Appendix D uses a different specification of the investment model. I decompose the cash variables into the predicted level of cash a firm should hold ($CASH^{*}$) and the abnormal level ($CASH^{\varepsilon}$), using the Opler et al. (1999) regression discussed above.

Also note that the two components are derived from the natural log of CASH. The advantage of decomposing CASH is to differentiate the effect between normal cash and abnormal cash on investment expenditure, which is particularly important for the purpose of my analysis as I have found that abnormal cash relates to securitization decisions. In this specification, all variables load as expected. In addition to the variables discussed above in Column 1, AGE is negatively related to investment (p-value = 0.047) because mature firms have more difficulty in raising new capital and, thus, lessen their level of investment. Larger firms, on the other hand, have less difficulty in raising capital and, thus, are expected to invest more. The positive coefficient on SIZE confirms this expectation (p-value < 0.0001).

Table 16 presents the descriptive statistics of predicted investments (I^{*}_{NEW}) and abnormal investments (I^{ε}_{NEW}). I also include cash flow generated from assets in place (CF_{AIP}) and free cash flow (FCF) to provide a comparison with the statistics reported in Richardson (2006). Panel A reports the descriptive statistics for 22,280 Compustat firm-year observations in the period between 2000 and 2009. To be included in the sample, an observation must have estimates for all four variables. This requirement enables a more reasonable comparison across variables. First, I reported the variables estimated from the original investment model. The average cash flow from assets in place for my sample is 5.4% of total assets, which is slightly higher than the 3.8% for the sample in Richardson's study (2006). The average normal investment on new projects is 7.7% of total assets, similar to the 7.5% reported by Richardson (2006). Free cash flow is on average negative, indicating that the average firm has a cash shortfall of 2.2% of its asset base, compared to a shortfall of 3.6%, reported by Richardson (2006). The descriptive statistics for variables

estimated using the cash decomposition model are almost identical to those in the original model.

Panel B of Table 16 contains the descriptive statistics for the securitization sample with 860 transactions. All variables are measured in the transaction year. I find a notable difference in normal investment as a percentage of total assets between the securitization sample (3.9%) and the Compustat sample (7.7%). This variation is attributed to the difference in the total investment in new projects rather than to the difference in abnormal investment. The average free cash flow is positive for securitization firms (1.2% of total assets), whereas average free cash flow is negative for Compustat firms, indicating an average cash shortfall of 3.6% of the total assets. The positive free cash flow for securitization firms, on average, is expected because it is likely to include securitization proceeds. Overall, the results from the investment model and their descriptive statistics are consistent with those reported in Richardson (2006), confirming the reliability of both the normal investment (I^{*}_{NEW}) and the abnormal investment (I^{ε}_{NEW}) estimates.

Table 17 reports a comparison between securitization firms and their matching sample firms in the current year and the five years subsequent to securitization transactions. Although the comparison does not relate to the research hypotheses, I report it for a sense of how investment expenditure of securitization firms is compared to non-securitization firms with similar characteristics. To be included in the sample, both the securitization firm and the non-securitization firm in the pair must have both normal investment (I^{*}_{NEW}) and abnormal investment (I^{ε}_{NEW}) estimates. Accordingly, the sample size falls to 618 observations for each group.

An average securitization firm has positive abnormal investment (i.e., overinvestment) for the year of securitization and the first two years subsequent to the transaction. The magnitudes of overinvestment are, however, relatively small and amounting to only 0.1% to 0.4% of the total assets for the three years. Abnormal investments for securitization firms also decrease over time. On average, securitization firms have higher levels of abnormal investment than non-securitization firms. The difference, however, reverses in the third year after securitization and lasts until the fifth year. The same pattern is also observed in the comparison of sample medians, except that the medians of abnormal investment for both groups are negative for all years, indicating underinvestment.

The comparison of normal investment (I^{*}_{NEW}) between the two groups indicates that non-securitization firms have consistently higher normal investments than securitization firms across all years. This pattern is found in the comparisons of both sample means and medians. Although not reported, total investments in new projects (the sum of I^{*}_{NEW} and I^{e}_{NEW}) are also higher for non-securitization firms across all years. Therefore, the difference in abnormal investment between the two groups is partially driven by their difference in total investment.

Turning to the main analysis of investment expenditure for securitization firms, I report in Table 18 a comparison of normal and abnormal investment expenditure between securitization transactions with gains (GAIN firms) and those with losses or zero securitization income (NON-GAIN firms). Reporting securitization gains is one indicator of the presence of earnings management in securitization. Reporting losses or zero securitization income, on the other hand, indicates the absence of earnings management.

Thus, the comparison in Table 18 provides some preliminary evidence on whether earnings management in securitization is related to overinvestment in post-securitization periods. Within the total of 1,164 securitization transactions I identify from 10-K filings, 107 transactions report securitization gains, amounting to less than 10% of the total observations. The sample sizes shown in Table 18 are reduced by requiring observations to have all key variables.

The estimates for total investment in new projects (I_{new}) are similar between GAIN and NON-GAIN firms for the year of and the first year after securitization. In year 0, total investment as a percentage of total assets is approximately 4.2% for GAIN firms and 4.5% for NON-GAIN firms. This difference between the two groups becomes slightly, but not significantly, larger in the second and third years after securitization. The abnormal investment (I^{ε}_{NEW}) is approximately zero for an average GAIN firm in the year of securitization and in the first year after securitization. In the second through the fifth post-securitization years, the average I^{ε}_{NEW} estimates are negative (i.e., underinvestment), but their magnitudes are small (ranging from 0.6% to 1.4%). The medians I^{ε}_{NEW} are consistently negative during all years.

In comparison, NON-GAIN firms have positive abnormal investments, on average, for the first four years. The level of abnormal investment amounts to only a small percentage of total assets (2% to 4%). Moreover, t-tests indicate that the differences in abnormal investment between GAIN firms and NON-GAIN firms are not statistically significant across all the years. Thus, if reporting gains in securitization is a good indicator of earnings management, then the findings reported in this section are contrary

to the notion that earnings management in securitization is related to post-securitization overinvestment.

Table 19 reports the regression analysis of whether the propensity of earnings management in securitization is related to overinvestment in the periods subsequent to securitization. Instead of simply using reporting gains as a proxy for instances of earnings management, as in Table 17, I use three different approaches to capture the propensity of earnings management. All three specifications of earnings management account for the impact of securitization gains or losses on reported earnings, but differ on the assumption that defines earnings management. The first approach assumes that inflating earnings with securitization gains is evidence of earnings management. The second approach follows the logic that income smoothing with either securitization gains or losses represents earnings management. The final approach defines earnings management as a process that inflates earnings with securitization gains and smooth earnings with losses, but only to a certain degree. To allow the association between abnormal investment and earnings management to be asymmetric according to whether a firm's pre-securitization earnings meet/miss or beat the earnings benchmark, I use two indicator variables to capture the propensity for earnings management. I discuss details on variable construction in the methodology section (3.32).

Panel A of Table 19 reports the results from the model that regresses abnormal investments in the year of securitization on proxies for the propensity of earnings management and estimates of free cash flow (FCF). Free cash flow variables are included here as control variables, because Richardson (2006) has shown a strong relationship between overinvestment (and also underinvestment) and free cash flow. FCF is defined as

the difference between the free cash flow from existing assets in place and the free cash flow from growth opportunities estimated using the level of expected investment in equation (7). As expected, the coefficients on the free cash flow variables are positive and statistically significant. This association implies that the level of abnormal investment for securitization firms increases with the level of free cash flow. Contrary to the general conclusion in Richardson (2006), the coefficient on FCF < 0 is actually larger than the coefficient on FCF > 0. However, the coefficient difference can be interpreted as follows: for every dollar decrease in free cash flow, firms with negative FCF reduce more abnormal investment than firms with positive FCF.

The indicator variables SecEM_M and SecEM_B capture the effect of earnings management through securitization on abnormal investment.[26] Based on the indicator specifications, I find relatively few instances of earnings management in securitization for my sample (i.e., where SecEM_M and SecEM_B are both equal to 1). Out of the 943 securitization transactions, 79 transactions report securitization gains to inflate earnings (model EM_1), 157 transactions use securitization gains or losses to smooth earnings (model EM_2), and 161 transactions report gains to inflate earnings or report losses to move earnings closer to, but not below, the benchmark (model EM_3). In summary, transactions with a propensity to manage earnings amount to only 8% to 17% of the

26. In the first specification, I set SecEM_M equal to 1 if a firm reports a securitization gain and its pre-securitization income misses or meets the earnings benchmark and 0 otherwise. Similarly, I set SecEM_B equal to 1 if a firm reports a securitization gain but its pre-securitization income beats the benchmark and 0 otherwise. In the second specification, I set SecEM_M equal to 1 if a "miss firm" reports a post-securitization income that is closer than its pre-securitization income to the benchmark and 0 otherwise. SecEM_B equals 1 if a "beat firm" reports post-securitization income that is closer than pre-securitization income to the benchmark and 0 otherwise. In the third specification, I set SecEM_M equal to 1 if a "miss or meet firm" records a securitization gain and 0 otherwise. SecEM_B equals to 1 if a "beat firm" records a securitization loss that has an absolute value less than the unexpected earning and 0 otherwise.

sample, depending on which specification is used to capture earnings management in securitization. If the propensity of earnings management in securitization encourages overinvestment of securitization proceeds, then the coefficients on both variables are expected to be positive. I find that in all three specifications of earnings management, the coefficients are negative but insignificant. It appears that earnings management in securitization has no predictive power for overinvestment or underinvestment by securitization firms in the transaction year.

Panel B of Table 19 reports the regression results using abnormal investment (I^{ε}_{NEW}) in the year after securitization as the dependent variable. Free cash flow variables are also measured in the year after securitization. The coefficients on FCF < 0 and FCF > 0 both remain positive and significant. The difference in magnitude between these two coefficients is larger than is reported in Panel A. Again, I find no statistically significant association between the propensity for earnings management and the abnormal investments by firms in the year subsequent to securitization.

Table 20 repeats the analysis using I^{ε}_{NEW} estimated from the investment model, where CASH is decomposed to a component with the normal level of cash a firm should hold and the abnormal cash component. I previously detail the advantage of this approach. In addition, the decomposition of CASH effectively adds abnormal cash as a control variable in the testing of the association between I^{ε}_{NEW} and the propensity to manage earnings with securitization. This is particularly important when taking into account my earlier findings that abnormal cash (a proxy for liquidity demand) relates to securitization decisions. Results from the regression tests are generally consistent with those reported in Table 19.

In additional tests, reported in Tables 21 and 22, I adjust securitization gains and losses with transaction costs in constructing proxies for earnings management. I describe details of this adjustment in the discussion of Table 13. This approach slightly changes the number of earnings management instances (i.e., where SecEM_M and SecEM_B both equal 1). For the first proxy, the number of earnings management instances decrease from 79 to 74. This reduction indicates that five transactions have costs large enough to offset securitization gains. The instances of earnings management increases by approximately 30% for the second and third proxies. The results from all regression specifications yield the general conclusion that the propensity for earnings management in securitization is not associated with abnormal investments during the current year and the year immediately after securitization.

Collectively, the analysis in this section leads to two findings. First, there are relatively few instances of earnings management in securitization in my sample of non-financial firms. Second, I do not find any evidence to support an association between the propensity to manage earnings with securitization and overinvestment of securitization proceeds. Moreover, the findings are robust to the two different measures of abnormal investment and to various proxies for the propensity for earnings management in securitization.

IV. MARKET VALUATION OF SECURITIZATION

In this section, I examine the market's perception of securitization as reflected in its valuation of two aspects of securitization transactions: securitizable assets and the use of proceeds from securitization. To examine the market valuation of securitizable assets, I decompose income into a cash component and an accrual component. The accrual component is further decomposed into the change in securitizable assets and the change in other net operating assets. Because securitizable assets serve as a source of liquidity for securitization firms, I examine whether the market valuation of securitizable assets in accruals resembles the valuation of the cash component of income. With regard to the use of securitization proceeds, I examine whether the market valuation reflects the distinction between securitization transactions that help firms to mitigate the underinvestment problem and transactions that create excess liquidity.

4.1 Literature Review

A substantial body of literature examines the market's perception of whether risk transfer can be successfully achieved in the presence of retained interest and implicit recourse. Landsman et al. (2008) investigate the market's perception of the level of risk transfer achieved by securitization. They estimate a cross-sectional market valuation model on assets, liabilities, and net incomes by adding back securitized assets and related liabilities to the balance sheets of the securitizers. They find that the market does not view asset transfers in securitizations as true economic sales; that is, securitizers retain most

risks and rewards associated with the transferred assets. When examining the impact of retained interest on the perception of risk transfer, Landsman et al. (2008) find that cross-sectional variation in the level of retained interests has no effect on the market's assessment. As they point out, this finding should be interpreted cautiously. While their evidence is consistent with the argument that there is little or no risk transfer in securitizations, the possibility exists that the market lacks the sufficiently credible information necessary to discern the degree of risk transfer based on the level of retained interest.

Niu and Richardson (2006) focus on a related issue by examining whether off-balance-sheet debt has the same risk relevance as on-balance-sheet debt in explaining the market's assessment of risk (CAPM beta). Consistent with the findings of Landsman et al. (2008) and Niu and Richardson (2006) conclude that the market views securitizations as, essentially, secured borrowings, rather than sales. In the examination of the bond market's valuation of securitizations, Barth et al. (2009) find that bond spreads do not reflect any difference in credit risk between securitizers' retained interest in securitized assets and the remaining interest in these assets. In other words, the bond market also views securitizations as secured borrowings instead of sales.

Gaon (2007) uses market valuation to distinguish the wealth expropriation hypothesis from the efficiency hypothesis. The wealth expropriation hypothesis suggests that securitizations are used to transfer wealth from the bondholders to the shareholders. Wealth transfer can be achieved either by limiting the claims of creditors to securitized assets in the event of bankruptcy or by distributing the securitization proceeds to the shareholders as dividends. In comparison, the efficiency hypothesis suggests that

securitization is a solution to the underinvestment problem. In particular, securitization generates new cash flows that can be invested in positive net present value projects. Further, securitization also substitutes for secured borrowing in the presence of various costs imposed by regulatory restrictions and market imperfections. By examining bond price reactions to announcements of the issuance of asset-backed securities, Gaon (2007) first shows that bondholders do not react negatively to the announcements, contrary to the pure wealth expropriation hypothesis. Evidence showing that the level of securitizations is higher for firms with good financial health is also inconsistent with the wealth transfer hypothesis. In terms of post-securitization operating performance, Gaon (2007) finds that the originators do not experience deterioration in profitability (e.g., net sales, operating income, and net income) after securitizations. Thus, there is no evidence supporting wealth transfer from bondholders to shareholders by the means of investing in non-value enhancing projects.

Along similar lines, Lockwood, Rutherford, and Herrera (1996) directly test the wealth effect on shareholders in securitization, investigating whether it differs by industry, financial health of the securitizer, or type of assets securitized. Using daily stock returns around securitization announcements, Lockwood et al. (1996) show that the market reacts positively to securitization events overall. They point out that the positive reaction may be attributed to the economic benefits of reduced financing need and reduced firm risk, increased earnings from fee income and the retirement of debt, and the opportunity to appropriately smooth earnings. The wealth effect, however, is industry specific. Automobile and industrial companies experience no wealth change. Financial

slack, not the types of securitized assets, determines the wealth effect of securitization.[27] In particular, they find that the market views securitizations by weak banks negatively in which securitizations are generally followed by an increase in market and interest rate risk.

A later study by Gasbarro, Stevenson, Schwebach, and Zumwalt (2005) expand upon the research questions of Lockwood et al. (1996) by investigating the wealth effects of securitization within the banking industry across a larger sample of firms. They find that wealth effects are firm specific: banks with high bond ratings (a proxy for information asymmetry and creditworthiness), high financial leverage (a proxy for financial slack), low non-interest expenses (a proxy for comparative advantage in loan origination), and high issue frequency (a proxy for reputation) receive positive market response. Their findings imply that market responses vary depending on the perceived motivations for securitizations. The market responds positively to securitization events when securitization transactions derive perceived benefits, such as alleviating under-investment problems and improving effectiveness in generating loans for banks.

Collectively, existing studies have provided evidence on the market valuation of different aspects of securitization. In general, both the stock market and the bond market view securitization transactions as secured borrowings rather than sales of securitized assets. Securitization is not motivated by wealth transfer from bondholder to shareholders, as evidenced by bond price reaction to securitization announcements. Stock markets also react positively to securitization announcements. However, stock price

27. Lockwood et al. (1996) measure financial slack as the sum of quarterly capital surplus and retained earnings, scaled by the market value of equity.

reactions are industry specific and also vary depending on the securitizers' level of financial slack. The examinations of stock market valuation of securitized assets and the use of securitization proceeds in this study extend the stream of literature on securitization.

4.2 Hypothesis Development and Methodology

4.21 Market Valuation of Securitizable Assets

This section examines the market valuation of securitizable assets in the accrual component of earnings. To develop a testable hypothesis, I start with a standard market valuation model of income and book value, where income is decomposed into various cash and accrual components. Prior studies document differential persistence in the cash and accrual components of earnings in predicting future profitability. Although securitizable assets are accruals, they have similar properties to the cash component of earnings. Specifically, because securitizable assets can be converted into cash through securitization, they represent a source of liquidity that is similar to cash. Accordingly, I investigate whether the market valuation of securitizable assets more closely resembles the valuation of cash than other accruals for securitization firms.

Ohlson (1995) specifies a market valuation model of book value and abnormal earnings as follows based on the dividend discount model assumptions and the clean-surplus accounting assumption:

$$P_t = y_t + \alpha_1 x^a_t + \alpha_2 v_t, \quad (8)$$

where P is the stock price at the end of period; y is the book value per share at the end of the period; x^a is the abnormal earnings per share for the period; and v is other non-

accounting information.[28] Collins, Pincus, and Xie (1999) re-express market valuation as a function of beginning-of-period book value and current period income. This model is derived by substituting end-of-period book value with beginning-of-period book value plus income minus dividend, and abnormal earnings with actual earnings minus expected earnings:

$$P_t = \alpha + \beta_1 X_t + \beta_2 BV_{t-1} + \varepsilon_t, \quad (9)$$

where X is the per-share income before extraordinary items for the period, and BV is the beginning-of-period book value of equity per share.

I next decompose the current period income (X) in equation (9) using the approach by Dechow, Richardson, and Sloan (2008).[29] Their income model specifies the mechanical relationship between income and the change in net operating assets, the change in cash, and net distributions to equity-holders and debt-holders:

$$INCOME = \Delta NOA + \Delta CASH + DIST\_EQ + DIST\_D, \quad (10)$$

where INCOME is income before extraordinary items; ΔNOA is the change in net operating asset;[30] ΔCASH is the change in cash and short-term investment; DIST_EQ represents distribution to equity holders (equity issuances) when it is positive (negative);

28. I measure price at the end of the fiscal in the main test. Because financial information is not fully revealed to the market at the end of the fiscal year, I also measure price at three months after the fiscal year end date in the sensitive tests.

29. Appendix A explains the derivation of the model.

30. NOA is the difference between operating assets and operating liabilities which include current accruals and investment in net long-term assets.

and DIST_D represents debt repayments (debt issuances) when it is positive (negative).[31] In essence, equation (10) decomposes income into accruals and three free cash flow components of earnings: cash retained by the firms, net distributions to equity holders, and net distributions to debt holders. Positive free cash flow is retained in the cash balance or distributed to equity holders as dividends or debt holders as debt repayments. Negative free cash flow is financed either by equity or debt issues or through a reduction in the cash balance.

In predicting future earnings, Dechow et al. (2008) find that retained cash (ΔCASH) has the lowest earnings persistence of the three cash components for four reasons. First, the agency problem of cash flow (Jensen 1986) suggests that cash retained by firms encourages wasteful spending and investing by managers. Second, managers have incentives and opportunities to temporarily increase the cash balance prior to financial statement date, which has a reversing effect in the subsequent periods. Third, the cash balance is subject to accounting errors or fraudulent financial reporting. Finally, retained cash is likely to be invested in net operating assets, which have diminishing returns on investment.

In terms of distributed free cash flow, Dechow et al. (2008) find that net distribution to equity holders (DIST_EQ) has higher earnings persistence than net distribution to debt holders (DIST_D). In cases where the firm is generating earnings, net distribution to equity holders has a stronger signaling value because dividend payments

31. Variables definition (Compustat Xpressfeed item name in parentheses): INCOME = Income Before Extraordinary Items (IB); ΔNOA = the change in non-cash assets less the change in non-debt liabilities, or [(ΔAT - ΔCHE) – (ΔLT – ΔDLTT – ΔDLC), ΔNOA is labeled as ACCRUALS in Dechow (2008)]; ΔCASH = the change in Cash and Short-Term Investments (CHE); DIST_EQ = Net Equity Distributions, or – (ΔAT – ΔLT – IB); DIST_D = Net Debt Distributions, or – (ΔDLC + ΔDLTT).

are discretionary. In comparison, distributions to debt holders in the form of debt repayments are scheduled events. Conversely, when the firm is experiencing losses which are expected to persist into the future, equity financing is more likely than debt financing because equity holders are more willing to absorb higher risks associated with financial distress.

Substituting the definition of income from equation (10) into equation (9) and measuring all variables on per-share bases yields the following valuation model:

$$P_{i,t} = \alpha_0 + \beta_1 \Delta CASH_{i,t} + \beta_2 \Delta NOA_{i,t} + \beta_3 DIST\_EQ_{i,t} + \beta_4 DIST\_D_{i,t} + \beta_5 BV_{i,t-1} + \varepsilon_{i,t}. \quad (11)$$

Prior research has extensively studied the market's valuation of ΔNOA, particularly in the context of accrual anomaly studies. Following Dechow et al. (2008), I define ΔNOA (i.e., the accrual component of earnings) in equation (11) to include the changes in current accruals, non-current assets, financial assets, and liabilities. This definition of ΔNOA thus reflects the change in the accounting value of a firm's operations. Sloan (1996) first documents the empirical evidence that suggests the market initially overprices the persistence of the accrual component of earnings and subsequently reverses its valuation when future earnings are announced. Following Sloan's (1996) study, a large body of research has attempted to explain the mispricing of accruals by the market.

One explanation for the accrual anomaly is that the accrual component of earnings is subject to measurement error due to its discretionary nature. Therefore, accruals are less persistent than the cash flow component of earnings, a property that the market, on

average, does not fully understand. Naïve fixation on earnings causes mispricing related to the accrual component (Sloan 1996; Xie 2001; Richardson, Sloan, and Tuna 2005).

An alternative explanation is that the accrual anomaly is an artifact of the general growth (value-glamour) anomaly, because the accrual component of earnings measures the growth in net operating assets (Fairfield, Whisenant, and Yohn 2003). In support of this explanation, Fairfield, Whisenant, and Yohn (2003b) show that the accrual component of earnings is more highly correlated with growth in net operating assets than the cash component of earnings. Furthermore, the accrual component and the cash component have similar earnings persistence. Because one-year-ahead earnings are often deflated by invested capital (e.g., total assets) in accrual anomaly studies, Fairfield et al. (2003b) argue that the market mispricing of accruals is due to the market's misunderstanding on the diminishing marginal returns on investment rather than the low earnings persistence of accruals resulted from earnings management.

A recent study by Zhang (2007) shows that investment in capital assets and inventory results in positive accruals; and that the accrual component of earnings is associated with other non-accounting growth attributes in firms (e.g., business expansion and employee growth). Thus, evidence from Zhang (2007) further confirms that the observed accrual anomaly can be interpreted as the market's misunderstanding of the low persistence of accruals due to diminishing marginal return on the investment (Stigler 1963) and/or accounting conservatism (Penman 2001).

It is important to note that my objective is not to investigate which explanation of accrual anomaly supports the market valuation of ΔNOA. Rather, I build on the idea that the market valuation of accruals reflects the value of investment in net operating assets. I

explain why the market valuation of securitizable assets and the valuation of other net operating assets are expected to be different from each other. I decompose ΔNOA into changes due to two components: securitizable assets (i.e., receivables) and other net operating assets:

$$P_{i,t}= \alpha_0 + \beta_1 \Delta CASH_{i,t} + \beta_2 \Delta ONOA_{i,t} + \beta_3 \Delta SA_{i,t} + \beta_4 DIST\_EQ_{i,t} + \beta_5 DIST\_D_{i,t} + \beta_6 BV_{i,t} + \varepsilon_{i,t}, \quad (12)$$

where ΔSA represents the change in securitizable assets, and ΔONOA represents the change in other net operating assets. All independent variables are scaled by the number of common shares outstanding. There are at least two reasons supporting the differential valuation of ΔSA and ΔONOA, in particular for securitization firms. First, prior studies view accruals as a component that captures profitability as well as a component that captures growth in net operating assets (Fairfield et al. 2003). The investment explanation for the accrual anomaly suggests that ΔNOA, as a whole, measures the fundamental investment in a firm's operations, and thus captures the firm's growth. Therefore, the market's valuation of accruals (ΔNOA) reflects an assessment of the current investment level and the expected future earnings related to this investment.

The two components of ΔNOA (i.e., ΔSA and ΔONOA), however, have different implications for expected future earnings. Specifically, an increase in ONOA captures investment in net operating assets, and is therefore expected to correlate positively with future profitability, given optimal investment (Zhang 2007). By definition, ΔSA reflects the change in receivables, a typical type of securitizable assets. Thus, an increase in the ΔSA component captures sales growth in the current period (i.e., current profitability) rather than investment in operating assets. While ΔSA is expected to correlate with sales

growth in the future period, it is unrelated to future profitability arising from current period investment in net operating assets (ΔONOA). Accordingly, the implication of ΔSA for future probability is different from that of ΔONOA.

Second, accrual components are different with respect to their abilities to predict future cash flows (Rayburn 1986; Barth, Cram, and Nelson 2001). Francis (2008) suggests that receivables (ΔSA) are monetary assets with similar actual and expected cash flow realizations. He predicts and finds that the market valuation of receivable accrual is greater than the valuation of other accrual components. The discussion so far has established a reasonable assumption of differential market valuation between ΔSA and ΔONOA. I next consider the market valuation of ΔSA and how it relates to the market valuation of ΔCASH.

In general, ΔSA is driven by a firm's operation, such as sales growth and collection policy of receivables. For securitization firms, ΔSA is largely driven by securitization when assets are converted into cash and removed from the balance sheet. An important feature of securitizable assets is that they can be converted into immediate funding through securitization, which can support profitable investment opportunities. Thus, securitizable assets also serve as a source of liquidity for securitization firms. The change in SA should therefore reflect not only the change in sales growth but also a change in liquidity for securitization firms. As long as the market is able to correctly identify securitization firms, its valuation of ΔSA should reflect a source of liquidity that resembles ΔCASH. Based on this intuition, I hypothesize that:

H4: For securitization firms, the market valuation of securitizable assets in the accrual component of earnings is similar to the market valuation of the cash component of earnings.

4.22 Market Valuation of the Uses of Securitization Proceeds

A related issue concerns the market valuation of the use of securitization proceeds. Specifically, I investigate whether market valuation varies depending on the degree of a firm's liquidity prior to securitization. One way to examine this research topic would be to conduct an event study linking abnormal returns from the period of securitization to the securitization proceeds. A shortcoming of this approach is that the use of proceeds is ambiguous when securitization events are announced. Therefore, it is difficult to reconcile the market's expectation with the actual use of proceeds. In other words, the assumption that the market is informed about the use of securitization proceeds is not fully supported. Given the difficulty in establishing a reasonable assumption of the market's expectation at the event window, I examine the market valuation in the period when the actual use of securitization proceeds is revealed.

Extending the approach used by Dechow et al. (2009) and Faulkender and Wang (2006), I classify the uses of cash proceeds from securitization into four categories. This classification of the use of securitization proceeds also corresponds to the income decomposition in equation (11). Following a securitization transaction, a firm can choose to 1) retain cash on its balance sheet (ΔCASH), 2) invest the proceeds in net operating assets (ΔNOA), 3) distribute the proceeds to shareholders as dividends or stock

repurchases (DIST_EQ), or 4) distribute the proceeds to debt holders by retiring debt (DIST_D).

Prior studies find that the market valuation of retained cash varies depending on a firm's existing cash holding, investment opportunities, leverage, and financing constraints. For example, Faulkender and Wang (2006) report that the marginal value of retained cash as reflected in market valuation increases as the level of a firm's cash position decreases. The reason is that a lower level of cash holding indicates a higher probability of costly external finance and a lower probability of dividend payment. The marginal value of cash also increases with a firm's investment opportunities and financing constraints. Finally, cash holdings are less valuable to shareholders of highly leveraged firms, because cash is more likely to be used as debt repayments than to be distributed as dividends. As the result, any increases in cash reflect an increase in debt value rather than an increase in equity value.

Consistent with the agency problem of free cash flow and diminishing marginal returns on new investments, Dechow et al. (2009) find that retained cash has a lower value than cash distributed to debt or equity holders. Dittmar and Mahrt-Smith (2007) examine the effect of corporate governance on the value of retained cash and find that the market value of a dollar in retained cash is higher for firms with strong governance (at $0.88) compared to firms with poor governance (at $0.42). Moreover, excessive cash holdings have a negative effect on firm values; however, strong corporate governance mitigates that effect. The general findings from these studies indicate that the market value of retained cash follows a bell-shaped distribution, such that if cash holdings

increase beyond the optimal level, the market discounts the marginal value of retained cash.

Extending this literature, I investigate the market's valuation of retained cash proceeds from securitization. The securitization event provides a unique setting that is different from other studies in the context of market valuation of retained cash, because securitization firms experience large infusions of cash proceeds that can potentially change the firms' investment sets. Moreover, this setting allows me to identify a firm's liquidity demand a priori. Specifically, retained cash from securitization is more valuable for firms with higher liquidity demand than firms with excess liquidity, because retained cash proceeds for the former are more likely to be used as a necessary cash buffer and/or to be invested in value-enhancing projects. In comparison, for firms with excess liquidity prior to securitization, retained cash has less value to shareholders, because the market prefers the distribution of excess cash from securitization as dividends.

Retaining excess cash on the firm's balance sheet also creates the agency problem of free cash flow, as explained by Jensen (1986). For example, Shin and Kim (2002) find that the level of investment is less sensitive to growth opportunities for firms with high levels of cash holdings compared to firms with low levels of cash holdings. Blanchard, Lopez-de-Silanes, and Shleifer (1994) examine how firms spend cash from legal settlements and find that firms prefer to engage in suboptimal investments than to distribute cash proceeds to shareholders. Hartford (1999) finds that the stock market penalizes cash-rich firms with low payouts. He also finds that acquisitions by cash-rich firms receive negative market valuation around acquisition announcement dates and that these firms subsequently experience poor operating performance. Titman, Wei, and Xie

(2004) find that firms with excess cash underperform their benchmark in the years subsequent to their decisions to increase investment expenditures. Collectively, the free cash flow hypothesis and related empirical evidence from prior studies suggests an effect of liquidity demand on the market valuation of retained securitization proceeds. This leads to the following hypothesis:

H5a: Firm's level of liquidity prior to securitization is inversely related to the market valuation of retained cash from securitization.

In addition, securitization proceeds can either encourage optimal investment in net operating assets or result in overinvestment that is potentially value-destroying to shareholders. For firms with high liquidity demand prior to securitization, proceeds from securitization can be used to fund feasible investment projects that mitigate the underinvestment problem. Consequently, the market's valuation should reflect the value-enhancing effect of the investment of securitization proceeds for these firms. On the other hand, if the infusion of securitization proceeds creates excess liquidity, managers are likely to engage in sub-optimal overinvestment, as predicted by the free cash flow hypothesis (Jensen 1986). Realizing the potential agency problem of free cash flow, the market is likely to discount investment by firms with excess liquidity from securitization. This leads to the next hypothesis:

H5b: Firm's level of liquidity prior to securitization is inversely related to the market valuation of the investment in net operating assets following securitization.

Besides retaining securitization proceeds on the balance sheet and investing proceeds from net operating assets, firms may also distribute proceeds to shareholders or bondholders in the form of dividends or debt repayments. The market's valuation of these

two uses of securitization proceeds is not likely to vary based on the firm's level of liquidity. Nevertheless, it is important to include the effect of net distributions to equity holders and debt holders as control variables in the market's valuation test.

As discussed above, the income decomposition model in equation (10) identifies the mechanical relationship between net income (INCOME) and the net change in current and non-current operating assets (ΔNOA), the change in cash (ΔCASH), and net distributions to equity holders (DIST_EQ) and debt holders (DIST_D). The source of securitization proceeds is equal to securitization gains or losses in INCOME plus the decrease in securitizable assets (SA) in accruals when these assets are securitized. The use of securitization proceeds is then distributed over the components of income on the right side of the equation (i.e., retained cash, net investment in NOA, and net distributions to equity holders and debt holders).[32] Thus, the market valuation (equation [11]) reflects the flow of securitization proceeds through different components of income.

Next, I incorporate liquidity demand prior to securitization into the model in equation (2) to test its effect on the market valuation of the uses of securitization proceeds:

$$P_{i,t} = \alpha_0 + \beta_1 LIQUIDITY_{i,t} + \beta_2 \Delta AR_{i,t} + \beta_3 \Delta ONOA_{i,t} + \beta_4 LIQUIDITY_{i,t} * \Delta ONOA_{i,t} + \beta_5 \Delta CASH_{i,t} + \beta_6 LIQUIDITY_{i,t} * \Delta CASH_{i,t} + \beta_7 DIST\_EQ_{i,t} + \beta_8 DIST\_D_{i,t} + \beta_9 BV_{i,t} + \varepsilon_{i,t}. \quad (13)$$

LIQUIDITY is the abnormal level of cash holdings (the residual, i.e., CASHε, estimated from equation [1]). A negative value for LIQUIDITY indicates that the level of cash

32. See Appendix B for a detailed explanation on the impact of securitization proceeds on the income model.

holdings is insufficient to meet a firm's liquidity needs, whereas a positive value indicates excess liquidity. All other variables have been previously defined. The interaction terms LIQUIDITY*ΔCASH and LIQUIDITY*ΔONOA capture the liquidity effect on the market valuation of retained cash and investment in other net operating assets, respectively.

4.3 Descriptive Statistics

Table 23 reports descriptive statistics for key variables including fiscal year end price, three months after fiscal year end price, and components of income decompositions. In Panel A, I present a comparison between securitization sample and non-securitization sample. The securitization sample consists of 974 securitization transactions over the sample period (i.e., transactions reported as sales, secured borrowings, or sales with consolidation). The non-securitization sample consists of 24,720 non-securitization observations from Compustat with available data to estimate all key variables during the sample period. The market value per share (P) is higher for both the average and the median securitization firm than for the non-securitization firm. ΔCASH represents cash retained from earnings plus cash retained from equity and debt issues (or minus equity and debt distributions) over the period. The mean and median values of ΔCASH indicate that securitization firms retain more cash from earnings and/or equity or debt financing than non-securitization firms.[33] The portion of cash from earnings alone, on average, is positive for securitization firms (0.478) but negative for

33. ΔCASH also represents retained cash from earnings net of distributions to equity and debt holders in cases where cash distributions are higher than proceeds from financing.

non-securitization firms (-0.125).[34] It appears that securitization firms retain some cash from earnings while non-securitization firms receive cash mainly through debt issues.

The mean value of the change in net operating assets (the sum of ΔONOA and ΔSA) is positive for both groups, indicating that firms are generally growing by investing in net operating assets. The mean values of ΔSA indicate that securitizable assets (i.e., receivables) constitute a significant portion of the change in net operating assets for both groups. For securitization firms, ΔONOA is on average negative (-0.029), indicating firms are reducing investment in other net operating assets in the year of securitization. At first glance, the positive average ΔSA for securitization firms (0.525) is contrary to the expectation that a large portion of securitizable assets is removed from the balance sheet in the year of securitization. However, the median value of ΔSA of 0.177 indicates that the distribution of ΔSA is positively skewed. There are approximately 39% of the securitization firms have negative ΔSA in the year of securitization. For non-securitization firms, ΔONOA is on average positive indicating that non-securitization firms are increasing investment in other net operating assets.

Net equity distribution (DIST_EQ) is on average positive for both securitization firms and non-securitization firms, indicating both groups are distributing dividends more than raising equity capital. DIST_EQ is much higher for securitization firms (0.656) than non-securitization firms (0.075) indicating that securitization firms distribute more dividend to equity holders than non-securitization firms. On average, firms in both groups are accumulating debt, as indicated by the negative mean values of DIST_D. However,

34. The portion of cash retained from earnings is calculated as ΔCASH + DIST_EQ + DIST_D, where DIST_EQ and DIST_D are positive when there are net distributions to equity holders and debt holders, respectively.

the values of DIST_D are highly skewed, with the medians at 0.056 and approximately 0 for securitization firms and non-securitization firms, respectively. A median securitization firm repays close to $0.056 per share in debts over the period. Taken together, the net distribution to capital provides (DIST_EQ plus DIST_D) on average is positive for securitization firms (0.092) but negative for non-securitization firms (-0.348). It appears that securitization firms have enough free cash flow to distribute capital while non-securitization firms require additional financing.

Table 23 Panel B presents a comparison between unique securitization firms and non-securitization firms. A firm with at least one securitization transaction during the sample period is included in the securitization sample, regardless whether the firm has securitization for a specific year. Thus, the non-securitization sample includes firms without any securitization transactions over the sample period. The descriptive statistics for this comparison in general are similar to those in Panel A. One notable difference is that the mean value of ΔONOA is positive for securitization firms (0.270). This is consistent with the idea that although securitization firms are reducing investment in the year of securitization, they are on average growing by investing in other net operating assets over the sample period.

Table 24 reports the Pearson correlations for price and the components of income. Panel A consists of 974 securitization transactions with sufficient data to estimate all key variables. As expected, fiscal year-end price and the price at three months after fiscal year end are both positively correlated with ΔCASH, two components of the change in net operating assets (ΔONOA and ΔSA), and the beginning book value of common equity. As expected, ΔCASH is negatively correlated ΔONOA. However, the correlation between

ΔCASH and ΔSA is not statistically significant. The correlations of the net contribution/distribution to capital providers with ΔONOA (-0.42 for DIST_EQ and -0.502 for DIST_D) are much stronger than their correlations with ΔCASH (-0.119 for DIST_EQ and -0.127 for DIST_D). Because negative values for DIST_EQ and DIST_D represent proceeds from equity and debt financing respectively, the correlations indicate that external financing is more likely to be invested in net operating assets than to be retained in cash.

Turning to the comparison between DIST_EQ and DIST_D, the correlation between DIST_D and ΔONOA (-0.502) is stronger than the correlation between ΔONOA and DIST_EQ (-0.42), indicating that investments in other operating assets are more frequently financed by debt than by equity. Similarly, cash retained on the balance sheet originates more often from debt financing than from equity financing, as indicated by the correlation between DIST_D and ΔCASH (-0.127) as compared to the correlation between DIST_EQ and ΔCASH (-0.119).

4.4 Results: Market Valuation of Securitizable Assets

Section 4.21 generates two key predictions concerning the market valuation of securitizable assets in accruals. First, based on the evidence from prior studies, the market valuation of securitizable assets (ΔSA) is expected to be different from the valuation of other accruals (ΔONOA). Second, Hypothesis 4 predicts that market valuation of securitizable assets in the accrual component of earnings is similar to the valuation of the cash component of earnings for securitization firms. In the main tests, I classify a firm as a securitization firm if the firm has at least one securitization transaction over the sample period. I use price at the end of the fiscal year to measure market valuation. Because

financial information may not be fully revealed to the market at the fiscal year end, I also include the price at three months after the fiscal year end in the sensitivity tests.

Table 25 reports the market valuation tests using three different samples. I use all firm-year observations from Compustat with available data to estimate key variables during the sample period in the CSTAT column. I then split the CSTAT sample into a sample of securitization firms (Column SECU) and a sample of non-securitization firms (Column NON-SECU). The regression model (equation 12) estimates the market valuation of various income components and book value (BV). Income is decomposed into an accrual component and a cash component; where the accrual component is further decomposed into securitizable assets (ΔSA) and other net operating assets (ΔONOA), and the cash component is decomposed into retained cash (ΔCASH), net distribution to equity holders (DIST_EQ), and net distribution to debt holders (DIST_EQ). Consistent with the expectation, all income components are positively associated with price in all model specifications. The coefficient on BV is also positive and significant, consistent with the idea that book value proxies for future normal earnings (Ohlson 1995), abandonment value (Burgstahler and Dichev 1997), and scale difference (Barth and Kallapur 1996).

The coefficients on the net distribution variables (DIST_EQ and DIST_D) are positive and significant. Dechow et al. (2008) suggest that distribution to equity holders in the form of dividends or share repurchases is a stronger signal for future profitability than debt repayments, because equity distribution is discretionary (i.e., when DIST_EQ and DIST_D are positive). Likewise, firms are more likely to use equity financing than debt financing when they are expecting future losses. Thus, DIST_EQ is also a stronger

signal than DIST_D for future losses, when the two variables represent net financing activities (i.e., when DIST_EQ and DIST_D are negative).

If the market correctly anticipates the signaling values of net distributions to capital providers, then the coefficient on DIST_EQ is expected to be larger than the coefficient on DIST_D. Contrary to this expectation, the coefficient on DIST_EQ is smaller than the coefficient on DIST_D for the Compustat sample and the sample of non-securitization firms. On the other hand, the market appears to understand the stronger signaling value of DIST_EQ (coefficient = 1.709) than DIST_D (coefficient = 1.292) for securitization firms. The mean value of DIST_EQ is significantly higher for securitization firms than for non-securitization firms. One possible explanation for this difference in findings is that the market assigns different weights to the signaling value of net equity distribution depending on the level of distribution.

Turning to the main results comparing the coefficients among ΔCASH, ΔONOA and ΔSA, I find that the coefficient on ΔCASH is higher than both the coefficient on ΔONOA and the coefficient on ΔSA in all specifications. The coefficient difference between ΔCASH and ΔONOA is statistically significant. It appears that the market understands the higher earnings persistence of the cash component of earnings as compared to the accrual components.[35]

35. Although unrelated to the research questions of this study, accrual anomaly studies document evidence that the market overestimates the persistence in the accrual components of earnings (i.e., the change in net operating assets). In other words, although the cash component is more persistent in predicting future earnings, the market incorrectly assigns a higher value to the accrual component than the cash component of earnings. The opposite finding I show here is due to the decomposition of cash into ΔCASH, DIST_EQ, and DIST_D and accruals into ΔSA and ΔONOA. In an untabulated test where I aggregate the three cash components, I find that the market valuation is higher for the change in net operating assets (coefficient = 2.20) than the change in the cash component of earnings (coefficient = 2.00).

In the first set of tests, I use fiscal year-end price to measure market valuation. For the Compustat sample and the non-securitization sample, the coefficient on ΔONOA is slightly higher than the coefficient on ΔSA with a difference of 0.5 (p-value = 0.127) and 0.6 (p-value = 0.081), respectively. In contrast, the ΔSA coefficient is 0.284 higher than the ΔONOA coefficient for the securitization sample (p-value = 0.082). Consistent with the prediction in Hypothesis 4, the coefficient on ΔSA (1.811) is similar in magnitude to the coefficient on ΔCASH of 1.999 (p-value = 0.452) for securitization firms. In contrast, and for non-securitization firms, the coefficient difference between ΔSA (2.178) and ΔCASH (3.073) is statistically significant.

Measuring price at three months after fiscal year end yields slightly different results. Specifically, the difference between the coefficient on ΔSA and the coefficient on ΔONOA is not statistically significant for all three samples. This finding is inconsistent with the notion that securitizable assets in accruals (ΔSA) have value implication that is different from other accruals (ΔONOA). The coefficient on ΔSA remains similar in magnitude to the coefficient on ΔCASH for securitization firms (p-value = 0.364), but the two coefficients continue to be different for non-securitization firms. Overall, the results support the prediction that the market valuation of securitizable assets in the accrual component of earnings is similar to the market valuation of the cash component of earnings for securitization firms.

Table 26 extends the analysis by adding firm-year fixed effects to the regression model. Firm-year fixed effects capture additional variations in price that are not explained by the income components and book value. This specification leads to identical signs and statistical significance of the coefficients as the previous model. The coefficient

magnitude on DIST_EQ decreases significantly in this specification. It appears that the weight of DIST_EQ on the market valuation is muted by the fixed-effect factors. One explanation is that DIST_EQ is likely to be firm and time specific and is, therefore, highly correlated with the firm and year level variables.

Turning to the key results, I find that the coefficient on ΔSA remains significantly larger than the coefficient on ΔONOA (p-value = 0.002) for securitization firms. This finding also emerges for the Compustat sample and the non-securitization sample once firm-year fixed effects are added to the model. The finding also holds when price is measured at three months after year end. In particular, the coefficients on ΔSA in the Compustat, securitization, and non-securitization samples are 1.248, 0.893, and 1.375, respectively, and are significantly larger than the respective coefficients on ΔONOA of 1.061, 0.572, and 1.180.

Comparing the coefficient on ΔSA to the coefficient on ΔCASH, I find that the difference in coefficient magnitude between these two variables of 0.257 is statistically significant for non-securitization firms ($p < 0.0001$). That is, the market perceives that the cash component of income has higher persistence in predicting future profitability than securitizable assets in accruals for non-securitization firms. In contrast, I find similar market valuation between ΔSA and ΔCASH for securitization firms. The coefficient difference between these two variables is not statistically significant (p-value = 0.811). This finding also holds when price is measured at three months after the fiscal year end. Overall, results from the fixed-effects model confirm the previous finding that the market valuation of securitizable assets in the accrual component of earnings is similar to the valuation of the cash component of earnings, but only for securitization firms.

Table 27 examines whether the previous findings are sensitive to industry effect by controlling for the first two-digit SIC code in the regression model. The sample size decreases slightly due to observations with missing industry classification. All income components and BV retain the same signs and statistical significance. The coefficient on ΔSA remains significantly larger than the coefficient on ΔONOA in all three samples. For securitization firms, the coefficient on ΔSA (1.710) is similar to the coefficient on ΔCASH (1.800) with a p-value of 0.704. For non-securitization firms, the coefficient on ΔCASH is significantly higher than that of ΔSA with a difference in magnitude of 0.309 (p-value = 0.003). The specifications using price at three months after fiscal year end produces the same findings. Overall, results in Table 27 again confirm the general conclusion that, for securitization firms, securitizable assets in accruals receive similar market valuation as the cash component of earnings. This finding is consistent with the idea that the market perceives securitizable assets as a source of liquidity for securitization firms.

In the previous tests, I include a firm in the securitization sample if the firm has at least one securitization transaction over the sample period. This approach assumes that the market valuation of securitizable assets is not specific to the year of securitization. Next, I perform two additional tests (untabulated) where I include only securitization transactions in the securitization sample. In other words, a firm-year observation with securitization in the prior year but not the current year is excluded from the securitization sample. The first test estimates the market valuation model in the year prior to securitization with the assumption that the market is able to correctly anticipate which

firms will engage in securitization. The second market valuation test is estimated in the year of securitization when securitization events are revealed to the market.

In both tests, I find that the coefficient on ΔSA is similar in magnitude to the coefficient on ΔCASH for the securitization sample (p-value = 0.1028 and p-value = 0.1846 for the first and the second tests, respectively). Furthermore, the market appears to assign a slightly higher weight to ΔSA than to ΔCASH. One explanation for the higher coefficient on ΔSA as compared to ΔCASH is that the market valuation of securitizable assets in accruals reflects not only the source of liquidity in ΔSA but also the value implication of ΔSA for future probability.

For the non-securitization sample, the coefficient on ΔCASH is significantly higher than the coefficient on ΔSA with a difference of 0.934 (p-value < 0.0001) and 0.932 (p-value < 0.0001) for the first and the second tests, respectively. It appears that the market values securitizable assets in accruals differently from the cash component of earnings for the non-securitization sample. Finally, the coefficient on ΔSA and the coefficient on ΔONOA are significantly different for both the securitization and the non-securitization samples. Thus, the finding is consistent with the idea that the market valuation of securitizable assets in the accrual component of earnings reflects a source of liquidity that is similar to the cash component of earnings.

Two key findings emerge from this section. I document a difference between the market valuation of securitizable assets in accruals (ΔSA) and the market valuation of other accruals (ΔONOA) for all firms. This finding is consistent with the idea that first, securitizable assets (e.g., receivables), have similar expected and actual cash realizations, whereas other net operating assets have relatively uncertain future cash flows (Francis

2008). Second, the implication of securitizable assets in accruals for future profitability is different from those arising from the investment in other net operating assets. More importantly, I find the market valuation of securitizable assets in the accrual component of earnings is similar to the market valuation of the cash component of earnings for securitization firms, but not for non-securitization firms. This finding supports the notion that securitizable assets serve as a source of liquidity that is similar to the cash component of earnings for securitization firms, and the market appears to price this feature of securitizable assets.

4.5 Results: Market Valuation of the Uses of Securitization Proceeds

I next investigate whether the market valuation of the uses of securitization proceeds is related to a firm's pre-securitization liquidity. As discussed in detail in the methodology section, the uses of securitization proceeds are distributed over the income components (i.e., ΔCASH, ΔONOA, DIST_EQ, and DIST_D) in the market valuation model. The hypotheses focus primarily on securitization proceeds retained in cash and invested in net operating assets. The prediction is that the market valuation of these uses of securitization proceeds is inversely related to firms' liquidity prior to securitization. I use abnormal cash estimated from equation (2), for the year prior to securitization, as a proxy for liquidity. I include two interaction terms to capture the impact of liquidity on the market valuation of retained securitization proceeds and the market valuation of proceeds invested in net operating assets (ΔCASH*Liquidity and ΔONOA*Liquidity, respectively). The sample for this test consists of 881 securitization transactions. All variables, except liquidity demand, are measured in the year of securitization.

I start with the base model (untabulated) testing the market valuation of various income components and BV without the interaction effects. Because the valuation model is estimated in the securitization year, securitization proceeds are distributed over retained cash (ΔCASH), investment in other net operating assets (ΔONOA), distribution to equity holders (DIST_EQ), and distribution to debt holders (DIST_D). Thus, the results can be interpreted as the market valuation of the use of proceeds in each of these four components. The coefficients on ΔCASH, ΔONOA, DIST_EQ, and DIST_D are all positive and significant.

In particular, the coefficient magnitude is higher for ΔCASH (2.695) than for ΔONOA (2.466). This is consistent with the idea that the market perceives that securitization proceeds retained in cash have higher earnings persistence than proceeds invested in other net operating assets. Comparing the coefficients on the net distribution variables, the coefficient on DIST_EQ (2.632) is higher than the coefficient on DIST_D (2.264). It appears that the market valuation correctly reflects the higher signaling value in distribution to equity holders than distribution to debt holders. This is also consistent with the idea that securitization proceeds used to repay debts have relatively lower signaling value than proceeds distributed to equity holders. As explained in the previous section, the coefficient on ΔCASH is expected to be lower than the coefficient on DIST_EQ. Contrary to this expectation, the coefficients on ΔCASH (2.695) and DIST_EQ (2.632) are similar in magnitude. This finding can be interpreted in two ways. First, consistent with the finding in Dechow et al. (2008), the market overestimates the earnings persistence in ΔCASH. The second interpretation is that the market perceives

distribution to equity holders to have low signaling value if dividends are funded mainly by securitization proceeds.[36]

Table 28 examines the effect of liquidity on the market valuation of securitization proceeds retained in cash and proceeds invested in other net operating assets. In the first column, I measure liquidity using the level of abnormal cash in the year prior to securitization. As expected, ΔCASH and the two components of the change in net operating assets (ΔONOA and ΔSA) are positively associated with price (p-values <0.0001). Similar to the results in the base model, the coefficient on ΔCASH (3.073) is higher than the coefficient on ΔONOA (2.540) but lower than the coefficient on ΔSA (3.253). Furthermore, the coefficients on DIST_EQ, DIST_D, and BV remain positive and significant.

Turning to the effect of liquidity on market valuation, the interaction term between ΔCASH and Liquidity captures the effect of liquidity on the market valuation of securitization proceeds retained in cash. The interaction term is expected to be negative if the market discounts retained securitization proceeds in cash for firms with low liquidity demand (or excess liquidity) prior to securitization. Similarly, the interaction between ΔONOA and Liquidity is also expected to be negative if the market discounts investment in net operating assets (excluding securitizable assets) in the same manner. Contrary to these expectations, I do not find any statistical significance in the coefficients on these two interaction terms.

36. One way to investigate which interpretation explains the similar coefficients between ΔCASH and DIST_EQ is to conduct a Mishkin's test comparing the forecast coefficient to the valuation coefficient of these two variables. I do not perform the test here because it is not the objective of this study.

The second column reports test using the ranks of abnormal cash to measure Liquidity. I assign a number to Liquidity from 0 to 3, based on the quartile of abnormal cash to which an observation belongs. In essence, this approach divides firms into four groups according to their levels of liquidity prior to securitization and assesses whether the market valuations of securitization proceeds retained in cash and invested in other net operating assets vary across the groups. Again, I do not find any statistical significance in the interaction terms between Liquidity and ΔCASH and between Liquidity and ΔONOA. Overall, it appears that the market valuation of securitization proceeds retained in cash and the market valuation of proceeds invested in other net operating assets are not influenced by a firm's level of liquidity prior to securitization.

In the third column, I perform an additional test to investigate whether the market valuation of the uses of securitization proceeds reflects a distinction between firms with liquidity demand and firms with excess liquidity prior to securitization. Accordingly, I measure Liquidity using the sign of abnormal cash. I set Liquidity as being equal to 1 if abnormal cash is positive (i.e., an indicator for excess liquidity) and to 0 when abnormal cash is negative or equal to zero (i.e., an indicator for liquidity demand).

Using this specification, I find a negative and statistically significant coefficient on ΔCASH*Liquidity. Specifically, for securitization firms with liquidity demand prior to securitization, a one-dollar increase in retained cash is translated into a $4.495 per share increase in the market value. In contrast, for firms with excess liquidity prior to securitization, the corresponding increase is reduced to $2.567 (the coefficient on ΔCASH of 4.495 plus the negative coefficient on the interaction term of -1.928). The difference in the market valuation of retained securitization proceeds between these two sets of firms is

fairly large, confirming the economic significance of the liquidity effect. The coefficient on ΔONOA*Liquidity remains insignificant, suggesting that the market does not appear to value securitization proceeds invested in other net operating assets differently for firms with excess liquidity than for firms with liquidity demand prior to securitization. All other variables retain the same signs and similar coefficient magnitudes.

Columns 4 through 6 repeat the analysis by using price measured at three months after fiscal year end. The results are generally consistent with those in the first three columns. In the last column, the coefficients on ΔCASH and the interaction term between ΔCASH and the sign of liquidity indicate that, for every one-dollar increase in retained cash, the market valuation increases by $4.521 and $2.287, respectively, for securitization firms with liquidity demand and securitization firms with excess liquidity. Although the market does not appear to fully value the uses of proceeds based on the level of liquidity, the market does differentiate its valuation of securitization proceeds retained in cash between firms with liquidity demand and firms with excess liquidity prior to securitization. In particular, the market discounts excess cash generated from securitization if securitization proceeds are retained by the firm. The market valuation of proceeds invested in other net operating assets appears to be unrelated to a firm's liquidity prior to securitization.

Table 29 controls for firm-year fixed effects in the model. The coefficient on Liquidity becomes statistically insignificant in this specification. It appears that the level of liquidity prior to securitization correlates with firm and time-specific factors that are not included in the model. The income component variables and BV retain the same signs and statistical significance. The interaction term between ΔCASH and Liquidity and the

interaction term between ΔONOA and Liquidity are both not statistically significant in all specifications. It appears the association between Liquidity and the market valuation of retained securitization proceeds is sensitive to controlling for fixed effects in the model.

I control for industry effect using the first two-digit SIC code in Table 30. The interaction term between ΔCASH and Liquidity continue to be statistically insignificant for all specifications. The interaction term between ΔONOA and Liquidity becomes positive and significant when Liquidity is measured by the sign of abnormal cash prior to securitization (Column 3), contrary to the expectation that the market discounts investment by firms with excess liquidity firms. However, this finding does not hold when price is measured at three months after year end.

Collectively, I find limited evidence in support of the hypothesis that the market valuation of retained securitization proceeds in cash is dependent on a firm's liquidity prior to securitization. Although the market does not appear to value the securitization proceeds retained in cash fully based on the level of liquidity, the market does differentiate its valuation between firms with liquidity demand and firms with excess liquidity prior to securitization. However, this finding is sensitive to controlling for firm-year and industry effects. In terms of securitization proceeds invested in other net operating assets, the results are inconsistent with the hypothesis that the market valuation of investment in other net operating assets is inversely related to firms' liquidity prior to securitization.

V. CONCLUSION

The research hypotheses I address in this study relate to the motivations for, and the market valuation of, securitizations within non-financial firms. In terms of the motivations for securitization, I examine whether firms' securitization decisions are related to their liquidity demand and/or their incentive for earnings management. I establish a testable hypothesis on the association between liquidity demand and securitization decisions by explaining firms' financing choices in response to the underinvestment problem that occurs when firms pass up valuable investment opportunities due to their liquidity constraints. Applying the financing hierarchy theory, I demonstrate that the segregation of asset risk feature of securitization enables the transaction to achieve a lower cost of capital than other forms of financing. Accordingly, I hypothesize that liquidity demand is a motivating factor for firms to engage in securitization. Using a sample of securitization firms and their matched non-securitization firms in non-financial industries, I find a strong association between liquidity demand and the likelihood of securitization. This finding is robust to controlling for industry and temporal effects and the frequency of securitization in the estimation models.

Prior research has documented the existence of earnings management in securitization in the form of recognizing non-zero securitization income in transactions. However, it is unclear whether the ex-ante incentive to manage earnings motivates securitization. Using various proxies to capture the earnings management incentive, I do

not find an association between the likelihood of securitization and the incentive for earnings management. Moreover, I show that the liquidity demand motivation retains its explanatory power for the likelihood of securitization for the sample of firms that record securitization gains in the transactions. Taken together, the findings on securitization motives imply that firms use securitization for additional liquidity in an attempt to mitigate the underinvestment problem when they face liquidity constraints, rather than use securitization as an earnings management tool.

Despite my finding that the ex-ante incentive for earnings management is unrelated to securitization attempt, the existence of earnings management in securitization has been well documented in prior research. I then investigate whether instances of earnings management in securitization are related to any negative economic consequences in terms of the overinvestment of securitization proceeds. Assuming that earnings management is employed to inflate or smooth current earnings, I use several earnings management proxies to capture the impact of securitization income on current earnings. I find no evidence supporting the assertion that the propensity of earnings management in securitization is associated with overinvestment in the periods subsequent to securitization.

This finding provides additional insights into the current literature on earnings management in securitization. Prior research has used the evidence of earnings management in securitization to evaluate the desirability of accounting standards on securitization. My finding that earnings management in securitization has no negative economic consequence in terms of encouraging overinvestment provides a new perspective on the desirability of the accounting standard that relates to the recognition of

gains and losses in securitization. Nevertheless, the findings should be interpreted with caution given that earnings management in securitization may have other economic consequences that are detrimental to investor welfare. Thus, an interesting avenue for future research is to investigate whether earnings management in securitization results in any other economic consequences which are not in the best interests of shareholders.

Two key findings emerge from my examination of the market valuation of securitization. First, I find that the market distinguishes the value implication between securitization assets and other net operating assets in the accrual component of earnings. This finding is consistent with the idea that first, securitizable assets (e.g., receivables) have similar expected and actual cash realizations, whereas other net operating assets have relatively uncertain future cash flows (Francis 2008). Furthermore, the implication of securitizable assets in accruals for future profitability is different from those arising from the investment in other net operating assets. For securitization firms, the market valuation of securitizable assets in the accrual component of earnings is similar to the valuation of the cash component of earnings, implying that the market perceives securitizable assets as an additional source of liquidity created by securitization.

Second, the market valuation of the uses of securitization proceeds is influenced, to some extent, by securitization firms' liquidity positions prior to securitization. Specifically, the market discounts retained securitization proceeds in cash for firms with excess liquidity prior to securitization. I find no evidence supporting the impact of liquidity on the market valuation of invested securitization proceeds in net operating assets.

In addition to the above caveat, four other limitations deserve some discussion. First, certain securitization transactions may be originated by financial institutions that are consolidated subsidiaries of non-financial parent firms. I am unable to identify this type of transactions based on information from the parent firms'10-K filings. Thus, including these transactions in my sample may have influenced the empirical findings given the differences in firm characteristics between non-financial firms and financial institutions. Second, in the examination of the earnings management motivation for securitization, I measure earnings management incentive using the difference between "pre-managed" actual earnings (i.e., earnings adjusted for discretionary accruals and securitization gains or losses) and the earnings benchmark based on prior year earnings. It is possible that the earnings management incentive is not only related to earnings inflation or income smoothing but is also conditional on the particular manager's compensation structure. Thus, an interesting extension of this research question is to use an alternative measure for earnings management incentive that incorporates compensation incentives.

Third, there are other potential motivations for securitizations such as risk allocation and reduction in cost of capital that are not examined in the analysis. A potential future research question is to examine whether firms are able to reduce cost of capital by financing through securitization instead of equity or debt. Finally, I measure the uses of securitization proceeds as embedded in different components of earnings in the market valuation test. This approach is somewhat indirect, given that it is unclear exactly how much securitization proceeds are distributed over the earnings components. Thus, a potential extension of this research question is to identify the actual uses of securitization proceeds.

APPENDIX A

INCOME MODEL DERIVATION

Reproduced from Dechow et al. (2008).

The balance sheet equation is:

Total Assets = Total Liabilities + Owners Equity

Decomposing total assets (liabilities) into financial assets (liabilities) and operating assets (liabilities) yields to following:

Cash + Operating Assets = Debt + Operating Liabilities + Owners Equity

Rearranging the terms yields the following:

Operating Assets – Operating Liabilities = Debt + Equity – Cash

Where operating assets is renamed as NOA:

NOA = Debt + Equity – Cash

Taking the change of each variable yields the following:

$\Delta NOA = \Delta DEBT + \Delta EQUITY - \Delta CASH$

Where $\Delta EQUITY$ is equal to Income minus Dividend plus Equity Issues, $\Delta DEBT$ is equal to Interest Expense minus Interest Paid minus Repayment plus Debt Issues. Further assuming Interest Expense is equal to Interest Paid:

ΔNOA = Debt Issues – Repayment + Income – Dividend + Equity Issues – ΔCash

Rearranging the terms:

Income = $\Delta NOA + \Delta CASH$ – (Debt Issues + Repayment) – (Equity Issues + Dividend)

Renaming Debt Issues + Repayment as the net debt distribution (DIST_D) and renaming Equity Issues + Dividend as the net equity distribution (DIST_EQ):

Income = $\Delta NOA + \Delta CASH$ + DIST_D + DIST_EQ

APPENDIX B

EXTENSION OF THE INCOME MODEL:

THE IMPACT OF SECURITIZATION

To understand the effect of securitization in this model, I first re-arrange the terms the income model: Income = ΔNOA + ΔCASH + DIST_EQ + DIST_D as:

$$\Delta CASH = INCOME - \Delta NOA - DIST\_EQ - DIST\_D$$

I next decompose the change in cash, income, and the change in net operating assets to show the effect of securitization:

$$\Delta CASH^{*} + \Delta CASH^{SEC} = INCOME^{*} + INCOME^{SEC} - \Delta NOA^{*} - \Delta NOA^{SEC} - DIST\_EQ - DIST\_D$$

The source of securitization proceeds can be expressed as follows:

$$\Delta CASH^{SEC} = INCOME^{SEC} - \Delta NOA^{SEC}$$

Where $\Delta CASH^{SEC}$ is securitization proceeds, ΔNOA^{SEC} is the decrease in accounts receivable due to securitization, and $INCOME^{SEC}$ is securitization gains or losses.

The uses of securitization proceeds are distributed over the income components as follows:

$$Income = \Delta NOA^{*} + \Delta NOA^{U\_SEC} + \Delta CASH^{*} + \Delta CASH^{U\_SEC} + DIST\_EQ^{*} + DIST\_EQ^{U\_SEC} + DIST\_D^{*} + DIST\_D^{U\_SEC}$$

Where ΔNOA^{U_SEC} is the securitization proceed invested in net operating assets, $\Delta CASH^{U\_SEC}$ is the proceed retained in Cash, $DIST\_EQ^{U\_SEC}$ is the proceed distributed to equity holders, and $DIST\_D^{U\_SEC}$ is the proceeds distributed to debt holders.

APPENDIX C

VARIABLE DEFINITIONS

Variable Name	Definition
AGE	Firm age measured by the number of years a firm is listed on CRSP
ASSET	The natural logarithm of total asset
CASH	Cash and short-term investments
$CASH^{*}$	Expected cash estimated from equation (2)
$CASH^{\varepsilon}$	Abnormal cash estimated from equation (2)
CAPX	Capital expenditure
CF	Cash flow defined as operating income before depreciation minus interest expense and income taxes
DIST_D	Net distribution to debt holders
DIST_EQ	Net distribution to equity holders
DIV	Indicator variable set equal to 1 if a firm pays dividend and 0 otherwise
EM	Proxy for earnings management incentive
FCF	Free cash flow defined as the difference between free cash flow from existing assets in place and free cash flow from growth opportunities
FCF > 0	Variable set equal to FCF if FCF is greater than zero and 0 otherwise
FCF < 0	Variable set equal to FCF if FCF is less than zero and 0 otherwise
FREQ	Indicator variable set equal to 1 if a firm has four securitization transactions over the sample period and 0 otherwise
I_{New}	Investment on new projects
I^{*}_{New}	Normal level of investment on new projects estimated from equation (7)
I^{ε}_{New}	Abnormal level of investment on new projects estimated from equation (7)
IndustrySigma	Industry average of the standard deviation of the operating ash flow over the last 10 years
LEVERAGE	Total current and long term debts
Liquidity	Proxy for liquidity measured with $CASH^{\varepsilon}$ estimated from equation (2)

APPENDIX D

ESTIMATION OF ABNORMAL CASH

$$CASH_{i,t} = F(\alpha + \beta_1 NA_{i,t} + \beta_2 CF_{i,t} + \beta_3 NWC_{i,t} + \beta_4 IndustrySigma_{i,t} + \beta_5 MV_{i,t} + \beta_6 CAPX_{i,t} + \beta_7 RD_{i,t} + \beta_8 LEVERAGE_{i,t} + \beta_9 DIV_{i,t})$$

		Fixed effect[a]	Fama-MacBeth[a]
Variables[b]	Expected sign	Coefficient (p-value)	Coefficient (p-value)
Intercept			-2.423 *(0.000)*
NA	?	-0.476 *(0.000)*	-0.077 *(0.000)*
CF	+	0.018 *(0.064)*	0.215 *(0.000)*
NWC	-	0.151 *(0.000)*	-0.106 *(0.000)*
IndustrySigma	+	0.190 *(0.002)*	2.073 *(0.000)*
MV	?	0.035 *(0.000)*	0.066 *(0.000)*
CAPX	?	1.405 *(0.000)*	1.160 *(0.039)*
RD	+	0.211 *(0.000)*	0.892 *(0.000)*
LEVERAGE	?	-0.237 *(0.000)*	-0.849 *(0.000)*
DIV	+	0.074 *(0.000)*	-0.141 *(0.000)*
Adjusted R^2		0.821	0.405
N		54769	54769

Note: Reproduced from Opler, Pinkowitz, Stulz, and Williamson (1999).

[a] In the Fixed Effect column, regression includes firm and year fixed effects in the regression. In the Fama-MacBeth column, regression is estimated using the Fama-MacBeth regression approach to eliminate the problem of serial correlation in residuals of panel data.

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

APPENDIX E

ESTIMATION OF ABNORMAL INVESTMENT EXPENDITURE

$$I_{NEW,\,i,t} = F(\alpha + \beta_1 V/P_{i,t-1} + \beta_2 LEVERAGE_{i,t-1} + \beta_3 CASH_{i,t-1} + \beta_4 AGE_{i,t-1} + \beta_5 SIZE_{i,t-1} + \beta_6 StockReturns_{i,\,t-1} + \beta_7 I_{NEW,\,i,t-1} + \sum Year\ Indicator + \sum Industry\ indicator)$$

		Original model	Decomposition model[a]
Variables[b]	Expected sign	Coefficient (*p*-value)	Coefficient (*p*-value)
V/P	-	-0.015 *(0.000)*	-0.013 *(0.000)*
LEVERAGE	-	-0.017 *(0.000)*	-0.008 *(0.001)*
CASH	+	0.125 *(0.000)*	
$CASH^{*}$	+		0.055 *(0.000)*
$CASH^{\varepsilon}$	+		0.005 *(0.000)*
AGE	-	0.000 *(0.571)*	-0.002 *(0.047)*
SIZE	+	-0.002 *(0.000)*	0.021 *(0.000)*
RETURNS	+	0.004 *(0.000)*	0.003 *(0.000)*
$I_{NEW,\,t-1}$	+	0.444 *(0.000)*	0.403 *(0.000)*
Adjusted R^2		0.447	0.438
N		26057	22318

Note: Reproduced from Richardson (2006).

[a] In the Decomposition Model, the variable CASH is decomposed into the predicted level of cash a firm should hold ($CASH^{*}$) and the level of abnormal cash ($CASH^{\varepsilon}$).

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

APPENDIX F

TABLES

Table 1. Sample selection summary

Initial sample	N
10-K filings with securitization key words	3,040
Actual securitization transactions	1,164
Transactions with industry classification	1,148
Sample for H1 & H2	
Securitization transactions (sale, secured borrowings, and consolidation)	916
Match sample observations	916
Total	1832
Securitization – sale transactions only	504
Match sample observations	504
Total	1,008
Sample for H3	
Securitization transactions (variables measured at t = 0)	943
Securitization transactions (variables measured at t = 1)	892
Sample for H4	
Securitization transactions	974
Non-securitization transactions	24,720
Total	25,694
Securitization firms	1,886
Non-securitization firms	23,808
Total	25,694
Sample for H5	
Securitization transactions	881

Table 2. Industry distribution of securitization sample

SIC	SIC code description	#Firm	#Obs	SA[a]	SB	CN
7	Agricultural Services	1	1	1	0	0
12	Coal Mining	4	18	13	5	0
13	Oil and Gas Extraction	3	8	8	0	0
15	Building Cnstrctn - General Contractors & Operative Builders	1	4	0	4	0
16	Heavy Cnstrctn, Except Building Construction - Contractors	1	1	1	0	0
20	Food and Kindred Products	7	43	21	22	0
22	Textile Mill Products	8	28	11	17	0
23	Apparel, Finished Prdcts from Fabrics & Similar Materials	2	13	1	12	0
24	Lumber and Wood Products, Except Furniture	3	10	2	8	0
25	Furniture and Fixtures	1	8	8	0	0
26	Paper and Allied Products	11	57	20	31	6
27	Printing, Publishing and Allied Industries	3	6	4	2	0
28	Chemicals and Allied Products	22	94	58	19	17
29	Petroleum Refining and Related Industries	4	16	12	4	0
30	Rubber and Miscellaneous Plastic Products	4	20	12	8	0
32	Stone, Clay, Glass, and Concrete Products	3	14	6	8	0
33	Primary Metal Industries	8	23	13	3	7
34	Fabricated Metal Prdcts, Except Machinery & Transport Eqpmnt	7	28	22	1	5
35	Industrial and Commercial Machinery and Computer Equipment	21	91	65	9	17
36	Electronic, Elctrcl Eqpmnt & Cmpnts, Excpt Computer Eqpmnt	19	64	47	17	0
37	Transportation Equipment	18	88	66	14	8
38	Mesr/Anlyz/Cntrl Instrmnts; Photo/Med/Opt Gds; Watchs/Clocks	8	32	22	7	3
39	Miscellaneous Manufacturing Industries	2	7	0	1	6
40	Railroad Transportation	4	8	5	2	1
42	Motor Freight Transportation	9	32	5	26	1
44	Water Transportation	1	2	0	0	2
45	Transportation by Air	4	6	5	1	0
47	Transportation Services	2	6	4	2	0
48	Communications	8	30	17	13	0
50	Wholesale Trade - Durable Goods	21	98	42	40	16
51	Wholesale Trade - Nondurable Goods	6	21	3	13	5
53	General Merchandise Stores	10	29	11	12	6
54	Food Stores	1	8	0	8	0
55	Automotive Dealers and Gasoline Service Stations	2	9	8	0	1
56	Apparel and Accessory Stores	2	18	8	10	0
57	Home Furniture, Furnishings and Equipment Stores	3	13	13	0	0
58	Eating and Drinking Places	3	5	0	2	3
59	Miscellaneous Retail	7	31	22	9	0
65	Real Estate	1	2	2	0	0
67	Holding and Other Investment Offices	3	5	3	2	0

Table 2 continued

SIC	SIC code description	#Firm	#Obs	SA[a]	SB	CN
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	2	15	15	0	0
73	Business Services	24	93	33	38	22
75	Automotive Repair, Services and Parking	3	15	8	2	5
78	Motion Pictures	1	4	4	0	0
80	Health Services	2	4	0	4	0
87	Engineering, Accounting, Research, Management & Related Svcs	2	8	0	8	0
99	Nonclassifiable Establishments	3	12	12	0	0
Total		285	1148	633	384	131

[a] Column SA consists of observations that report securitizations as sale transactions. Column SB consists of observations that record securitization transactions as secured borrowings. Column CN consists of observations that report securitizations as sales but consolidate the SPEs.

Table 3. Descriptive statistics

Panel A: Securitization sample vs. match sample[a]

Variable[b]	Sample[c]	Mean	STD	Q1	Median	Q3
CASH[e] (fixed effect)	SECU	0.699	1.394	-0.163	0.802	1.695
	MAT	1.180	1.494	0.229	1.339	2.290
CASH[e] (Fama-MacBeth)	SECU	-0.398	1.290	-1.185	-0.321	0.518
	MAT	0.048	1.303	-0.845	0.275	1.022
UE_GainsAdj	SECU	-0.007	0.076	-0.024	0.001	0.018
	MAT	-0.005	0.078	-0.023	0.000	0.016
UE_GainsAdj (absolute)	SECU	0.045	0.071	0.008	0.021	0.047
	MAT	0.045	0.072	0.007	0.018	0.046
ASSETS	SECU	8.032	1.319	7.115	7.976	8.862
	MAT	7.923	1.320	6.986	7.845	8.847
MTB	SECU	2.480	2.899	1.241	1.916	3.098
	MAT	2.948	3.240	1.421	2.270	3.774
LEVERAGE	SECU	0.459	0.240	0.304	0.447	0.581
	MAT	0.383	0.273	0.186	0.368	0.547
RECEIVABLES	SECU	0.172	0.115	0.094	0.151	0.215
	MAT	0.142	0.094	0.072	0.129	0.195

Panel B: Securitization sample vs. match sample (sale transactions only)[d]

Variable	Sample	Mean	STD	Q1	Median	Q3
CASH[e] (fixed effect)	SECU	0.766	1.381	-0.110	0.883	1.768
	MAT	1.215	1.484	0.194	1.373	2.404
CASH[e] (Fama-MacBeth)	SECU	-0.404	1.245	-1.128	-0.367	0.479
	MAT	0.043	1.312	-0.908	0.275	1.022
UE_GainsAdj	SECU	-0.008	0.080	-0.028	-0.001	0.017
	MAT	-0.008	0.078	-0.025	-0.002	0.017
UE_GainsAdj (absolute)	SECU	0.048	0.077	0.009	0.021	0.053
	MAT	0.046	0.069	0.008	0.020	0.049
ASSETS	SECU	8.108	1.320	7.170	7.956	9.023
	MAT	8.007	1.312	7.043	7.836	8.939
MTB	SECU	2.746	3.260	1.276	1.933	3.616
	MAT	2.779	3.091	1.357	2.145	3.529
LEVERAGE	SECU	0.472	0.257	0.297	0.453	0.602
	MAT	0.388	0.272	0.189	0.375	0.555
RECEIVABLES	SECU	0.154	0.095	0.083	0.141	0.209
	MAT	0.140	0.086	0.072	0.130	0.194

Table 3 continued

Panel C: Securitization sample by transaction type[e]

Variable	Sample[f]	Mean	STD	Q1	Median	Q3
CASH[c] (fixed effect)	SA	0.766	1.381	-0.110	0.883	1.768
	SB	0.544	1.451	-0.352	0.610	1.540
	CON	0.806	1.272	0.171	0.970	1.701
CASH[c] (Fama-MacBeth)	SA	-0.404	1.245	-1.128	-0.367	0.479
	SB	-0.466	1.390	-1.411	-0.357	0.561
	CON	-0.191	1.198	-0.883	-0.170	0.597
UE_GainsAdj	SA	-0.008	0.080	-0.028	-0.001	0.017
	SB	-0.008	0.070	-0.023	0.001	0.017
	CON	0.002	0.074	-0.015	0.004	0.026
UE_GainsAdj (absolute)	SA	0.048	0.077	0.009	0.021	0.053
	SB	0.041	0.063	0.007	0.020	0.043
	CON	0.042	0.068	0.009	0.021	0.040
ASSETS	SA	8.108	1.320	7.170	7.956	9.023
	SB	7.920	1.377	6.898	8.025	8.801
	CON	7.991	1.139	7.442	7.989	8.647
MTB	SA	2.746	3.260	1.276	1.933	3.616
	SB	2.138	2.561	1.201	1.856	2.826
	CON	2.197	1.681	1.104	1.926	2.658
LEVERAGE	SA	0.472	0.257	0.297	0.453	0.602
	SB	0.463	0.223	0.323	0.454	0.581
	CON	0.394	0.197	0.284	0.402	0.506
RECEIVABLES	SA	0.154	0.095	0.083	0.141	0.209
	SB	0.190	0.136	0.098	0.151	0.230
	CON	0.204	0.125	0.131	0.179	0.218

[a] Panel A compares 916 securitization transactions to the match sample.

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] SECU represents the securitization sample and MAT represents the match sample.

[d] Panel B compares 504 sale securitization transactions to the match sample.

[e] Panel C reports the descriptive statistics for the securitization sample by the type of transactions.

[f] SA represents 504 sale securitization transactions. SB represents 298 securitization transactions reported as secured borrowings. CON represents 114 securitization transactions reported as sales with consolidations of SPEs.

Table 4. Pearson correlations for securitization motivations model

Variable[b]	CASH[ε] (FE)	CASH[ε] (FM)	UE GainsAdj	UE GainsAdj (ABS)	UE GEAdj	UE GEAdj (ABS)	ASSET	MTB	LEVERAGE
CASH[ε] (FM)	0.919	1							
	(0.000)								
UE_GainsAdj	-0.008	-0.006	1						
	(0.719)	*(0.812)*							
UE_GainsAdj(ABS)	0.115	0.102	-0.221	1					
	(0.000)	*(0.000)*	*(0.000)*						
UE_GEAdj	-0.007	-0.001	0.997	-0.221	1				
	(0.777)	*(0.974)*	*(0.000)*	*(0.000)*					
UE_GEAdj(ABS)	0.114	0.098	-0.219	0.997	-0.224	1			
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*				
ASSET	0.376	0.090	0.005	0.006	0.000	0.011	1		
	(0.000)	*(0.000)*	*(0.843)*	*(0.800)*	*(0.991)*	*(0.644)*			
MTB	0.127	0.063	-0.026	-0.087	-0.026	-0.086	0.078	1	
	(0.000)	*(0.007)*	*(0.264)*	*(0.000)*	*(0.262)*	*(0.000)*	*(0.001)*		
LEVERAGE	-0.227	-0.205	0.076	0.031	0.067	0.039	0.133	-0.090	1
	(0.000)	*(0.000)*	*(0.001)*	*(0.179)*	*(0.004)*	*(0.093)*	*(0.000)*	*(0.000)*	
RECEIVABLES	-0.070	-0.043	0.023	-0.087	0.020	-0.084	-0.138	-0.025	-0.079
	(0.003)	*(0.064)*	*(0.329)*	*(0.000)*	*(0.392)*	*(0.000)*	*(0.000)*	*(0.277)*	*(0.001)*

[a] Sample consists of 1832 securitization and matched non-securitization observations for the period 2000 through 2009.

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

Table 5. Logit regression of indicator for securitization on abnormal cash and control variables

		Full sample			Full sample w/ fixed effects	
Variable[a]	Expected sign	Coefficient (*p*-value)	Marginal effect[b]	Δ in prob.[c]	Coefficient (*p*-value)	
Intercept		-2.045			-2.704	
		(0.000)			*(0.001)*	
CASH[ε]	-	-0.247	-0.057	-0.118	-0.339	
		(0.000)			*(0.000)*	
ASSETS	+	0.191	0.044	0.080	0.247	
		(0.000)			*(0.000)*	
MTB	+	-0.036	-0.008	-0.018	-0.046	
		(0.025)			*(0.007)*	
LEVERAGE	+	0.832	0.193	0.061	1.037	
		(0.000)			*(0.000)*	
RECEIVABLES	+	3.157	0.732	0.090	4.040	
		(0.000)			*(0.000)*	
pseudo-R^2		0.054			0.070	
Likelihood ratio		138.242	***		177.749	***
Score test		132.792	***		167.711	***
Wald test		122.990	***		150.886	***
% concordant		64.1			66.9	
% discordant		35.5			32.8	
N		1832			1832	

Note: Prob($SECURITIZATION_{i,t} = 1$) = $F(\alpha + \beta_1 CASH^{\varepsilon}_{i,t-1} + \beta_2 ASSETS_{i,t-1} + \beta_3 MTB_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \beta_5 RECEIVABLES_{i,t-1})$. $CASH^{\varepsilon}$ = AbnormalCash_FixedEffect.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Marginal Effect represents the instantaneous effect of a one-unit change in a particular independent variable on the predicted probability of securitization, when covariates of other independent variables are kept fixed. It is calculated by multiplying the estimated coefficient by the logit density function evaluated at the sample means of the data.

[c] Δ in Prob. Represents the change in the probability that a firm engages in securitization given a change in the independent variable from the 25th percentile to the 75th percentile .

Table 6. Logit regression of indicator for securitization on abnormal cash and control variables

		Sale securitization sample			Sale securitization sample w/ fixed effects	
Variable[a]	Expected sign	Coefficient (*p*-value)	Marginal effect[b]	Δ in prob.[c]	Coefficient (*p*-value)	
Intercept		-1.883			-2.715	
		(0.000)			*(0.004)*	
CASH ε	-	-0.242	-0.057	-0.118	-0.349	
		(0.000)			*(0.000)*	
ASSETS	+	0.174	0.041	0.077	0.278	
		(0.002)			*(0.000)*	
MTB	+	0.010	0.002	0.006	0.008	
		(0.617)			*(0.704)*	
LEVERAGE	+	0.895	0.211	0.070	1.143	
		(0.001)			*(0.000)*	
RECEIVABLES	+	2.076	0.491	0.060	2.892	
		(0.005)			*(0.003)*	
pseudo-R^2		0.041			0.056	
Likelihood ratio		56.624	***		77.621	***
Score test		55.143	***		74.346	**
Wald test		52.334	***		68.507	**
% concordant		62.3			64.9	
% discordant		37.2			34.7	
N		1008			1008	

Note: Prob(SECURITIZATION$_{i,t}$ = 1) = F(α + β_1CASH$^{\varepsilon}{}_{i,t-1}$ + β_2ASSETS$_{i,t-1}$ + β_3MTB$_{i,t-1}$ + β_4LEVERAGE$_{i,t-1}$ + β_5RECEIVABLES$_{i,t-1}$). CASH$^{\varepsilon}$ = AbnormalCash_FixedEffect.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Marginal Effect represents the instantaneous effect of a one-unit change in a particular independent variable on the predicted probability of securitization, when covariates of other independent variables are kept fixed. It is calculated by multiplying the estimated coefficient by the logit density function evaluated at the sample means of the data.

[c] Δ in Prob. Represents the change in the probability that a firm engages in securitization given a change in the independent variable from the 25th percentile to the 75th percentile .

Table 7. Logit regression of indicator for securitization on abnormal cash and control variables

		Full sample			Full sample w/ fixed effects	
Variable[a]	Expected sign	Coefficient (*p*-value)	Marginal effect[b]	Δ in prob.[c]	Coefficient (*p*-value)	
Intercept		-1.668			-1.955	
		(0.000)			*(0.012)*	
CASH$^{\varepsilon}$	-	-0.229	-0.053	-0.098	-0.316	
		(0.000)			*(0.000)*	
ASSETS	+	0.106	0.025	0.044	0.114	
		(0.006)			*(0.019)*	
MTB	+	-0.041	-0.010	-0.020	-0.051	
		(0.011)			*(0.003)*	
LEVERAGE	+	0.960	0.223	0.070	1.211	
		(0.000)			*(0.000)*	
RECEIVABLES	+	3.133	0.729	0.090	4.112	
		(0.000)			*(0.000)*	
pseudo-R^2		0.052			0.067	
Likelihood ratio		132.108	***		169.774	***
Score test		127.133	***		160.455	***
Wald test		118.196	***		144.856	***
% concordant		64.4			66.8	
% discordant		35.2			32.9	
N		1832			1832	

Note: Prob(SECURITIZATION$_{i,t}$ = 1) = F(α + β_1CASH$^{\varepsilon}{}_{i,t-1}$ + β_2ASSETS$_{i,t-1}$ + β_3MTB$_{i,t-1}$ + β_4LEVERAGE$_{i,t-1}$ + β_5RECEIVABLES$_{i,t-1}$). CASH$^{\varepsilon}$ = AbnormalCash_FM.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Marginal Effect represents the instantaneous effect of a one-unit change in a particular independent variable on the predicted probability of securitization, when covariates of other independent variables are kept fixed. It is calculated by multiplying the estimated coefficient by the logit density function evaluated at the sample means of the data.

[c] Δ in Prob. Represents the change in the probability that a firm engages in securitization given a change in the independent variable from the 25th percentile to the 75th percentile.

Table 8. Logit regression of indicator for securitization on abnormal cash and control

		Sale securitization sample			Sale securitization sample w/ fixed effects	
Variable[a]	Expected sign	Coefficient (*p*-value)	Marginal effect[b]	Δ in prob.[c]	Coefficient (*p*-value)	
Intercept		-1.511			-1.940	
		(0.001)			*(0.039)*	
CASH[ε]	-	-0.244	-0.058	-0.105	-0.354	
		(0.000)			*(0.000)*	
ASSETS	+	0.089	0.021	0.038	0.144	
		(0.076)			*(0.042)*	
MTB	+	0.007	0.002	0.004	0.005	
		(0.741)			*(0.807)*	
LEVERAGE	+	0.991	0.234	0.077	1.286	
		(0.000)			*(0.000)*	
RECEIVABLES	+	2.033	0.480	0.059	2.980	
		(0.005)			*(0.002)*	
pseudo-R^2		0.040			0.056	
Likelihood ratio		56.489	***		77.954	***
Score test		55.022	***		74.661	**
Wald test		52.245	***		68.780	**
% concordant		63.0			65.2	
% discordant		36.5			34.4	
N		1008			1008	

Note : Prob(SECURITIZATION$_{i,t}$ = 1) = F(α + β_1CASH$^{\varepsilon}_{i,t-1}$ + β_2ASSETS$_{i,t-1}$ + β_3MTB$_{i,t-1}$ + β_4LEVERAGE$_{i,t-1}$ + β_5RECEIVABLES$_{i,t-1}$). CASH$^{\varepsilon}$ = AbnormalCash_FM.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Marginal Effect represents the instantaneous effect of a one-unit change in a particular independent variable on the predicted probability of securitization, when covariates of other independent variables are kept fixed. It is calculated by multiplying the estimated coefficient by the logit density function evaluated at the sample means of the data.

[c] Δ in Prob. Represents the change in the probability that a firm engages in securitization given a change in the independent variable from the 25th percentile to the 75th percentile.

Table 9. Descriptive statistics for abnormal cash for full sample by frequency of securitization

Panel A: Frequency of securitization transactions by the number of unique firms

Securitization frequency	1	2	3	4	5	6	7	8	9	10	Total firms
Number of firms	43	42	47	31	20	26	17	36	11	1	274

Panel B: Descriptive statistics of abnormal cash by frequency of securitization

			AbnormalCash_fixed effect					AbnormalCash_FM				
Securitization frequency	Number of observations	% of sample	Min	Median	Mean	STD	Max	Min	Median	Mean	STD	Max
1	37	4%	-2.589	1.031	0.907	1.436	3.735	-2.493	-0.022	-0.243	1.236	2.415
2	64	7%	-2.886	0.440	0.739	1.522	3.441	-3.498	-0.615	-0.516	1.287	1.804
3	107	12%	-2.886	0.623	0.831	1.488	3.846	-3.531	-0.359	-0.272	1.305	2.282
4	105	11%	-2.886	0.973	0.901	1.665	3.846	-3.367	-0.280	-0.213	1.393	2.415
5	83	9%	-1.292	0.927	0.814	1.133	3.445	-2.580	-0.305	-0.264	1.061	1.841
6	113	12%	-2.855	0.911	0.974	1.383	3.289	-3.531	-0.188	-0.044	1.339	2.415
7	135	15%	-2.886	0.331	0.359	1.302	3.034	-3.531	-0.734	-0.836	1.278	2.055
8	194	21%	-2.624	0.603	0.799	1.254	2.873	-3.531	-0.437	-0.232	1.311	2.415
9	68	7%	-1.850	0.766	0.967	1.383	3.519	-2.892	-0.395	-0.302	1.186	1.828
10	10	1%	-0.552	1.117	1.438	0.933	2.065	-1.859	0.067	0.541	0.995	1.055
Sample[a]	916	100%	-2.886	0.699	0.802	1.394	3.846	-3.253	-0.398	-0.321	1.290	2.415

[a] Sample size in Panel B is different from Panel A because select observations do not have sufficient data to estimate the abnormal cash variables. All are winsorized at the 1st and 99th percentile levels.

Table 10. Logit regression of indicator for securitization on abnormal cash and control variables: Control for securitization frequency

		Full sample		Sale securitization sample	
Fixed effect[a]		No	Yes	No	Yes
Variable[b]	Expected sign	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)
Intercept		-2.110	-2.716	-1.953	-2.699
		(0.000)	*(0.001)*	*(0.000)*	*(0.005)*
$CASH^{\varepsilon}$	-	-0.174	-0.258	-0.155	-0.247
		(0.009)	*(0.000)*	*(0.089)*	*(0.016)*
FREQ	?	0.031	0.005	0.073	0.026
		(0.821)	*(0.973)*	*(0.691)*	*(0.903)*
$CASH^{\varepsilon}$ x FREQ	?	-0.103	-0.114	-0.119	-0.140
		(0.178)	*(0.161)*	*(0.249)*	*(0.219)*
ASSETS	+	0.197	0.250	0.176	0.277
		(0.000)	*(0.000)*	*(0.002)*	*(0.000)*
MTB	+	-0.036	-0.046	0.010	0.009
		(0.025)	*(0.007)*	*(0.620)*	*(0.691)*
LEVERAGE	+	0.829	1.035	0.880	1.134
		(0.000)	*(0.000)*	*(0.001)*	*(0.000)*
RECEIVABLES	+	3.205	4.124	2.152	3.015
		(0.000)	*(0.000)*	*(0.003)*	*(0.002)*
pseudo-R^2		0.054	0.070	0.042	0.057
Likelihood ratio		140.303***	180.240***	58.006***	79.452***
Score test		134.810***	170.102***	56.418***	76.034**
Wald test		124.858***	153.002***	53.431***	69.966**
% concordant		64.3	67	62.5	65
% discordant		35.3	32.7	37	34.4
N		1832	1832	1008	1008

Note: $Prob(SECURITIZATION_{i,t} = 1) = F(\alpha + \beta_1 CASH^{\varepsilon}{}_{i,t-1} + \beta_2 FREQ + \beta_3 CASH^{\varepsilon} \text{ x } FREQ + \beta_4 ASSETS_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 LEVERAGE_{i,t-1} + \beta_7 RECEIVABLES_{i,t-1})$. $CASH^{\varepsilon}$ = AbnormalCash_Fix.

[a] Regression model includes industry and year fixed effect where is indicated.

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

Table 11. Logit regression of indicator for securitization on abnormal cash and control variables: Exclude retail industries

		Full sample[a]		Sale securitization sample	
Fixed effect[b]		No	Yes	No	Yes
Variable[c]	Expected sign	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)
Intercept		-2.272	-2.813	-2.507	-2.766
		(0.000)	*(0.001)*	*(0.000)*	*(0.009)*
$CASH^{\varepsilon}$	-	-0.268	-0.362	-0.267	-0.357
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
ASSETS	+	0.210	0.274	0.215	0.284
		(0.000)	*(0.000)*	*(0.000)*	*(0.001)*
MTB	+	-0.020	-0.031	0.034	0.027
		(0.233)	*(0.084)*	*(0.124)*	*(0.237)*
LEVERAGE	+	-1.023	1.190	1.256	1.441
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
RECEIVABLES	+	2.790	3.175	2.381	2.428
		(0.000)	*(0.000)*	*(0.003)*	*(0.018)*
pseudo-R^2		0.055	0.068	0.054	0.065
Likelihood ratio		123.798***	154.007***	67.077***	81.050***
Score test		118.950***	146.213***	64.627***	77.149***
Wald test		110.172***	132.626***	60.123***	70.271***
% concordant		63.7	66.6	63.9	65.9
% discordant		35.9	33.1	35.7	33.7
N		1624	1624	898	898

Note: $Prob(SECURITIZATION_{i,t} = 1) = F(\alpha + \beta_1 CASH^{\varepsilon}{}_{i,t-1} + \beta_2 ASSETS_{i,t-1} + \beta_3 MTB_{i,t-1} + \beta_4 LEVERAGE_{i,t-1} + \beta_5 RECEIVABLES_{i,t-1})$. $CASH^{\varepsilon}$ = AbnormalCash_Fix.

[a] Sample excludes retail industries with first two-digit SIC codes between 52 to 59.

[b] Regression model includes industry and year fixed effect where is indicated.

[c] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

Table 12. Logit regression of indicator for securitization on earnings management incentive and control variables

		UE_GainsAdj[c]	UE_GainsAdj	UE_GainsAdj (absolute)[d]	UE_GainsAdj (absolute)
Fixed effect[a]		No	Yes	No	Yes
Variable[b]	Expected sign	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)
Intercept		-1.363	1.854	-1.374	-1.886
		(0.002)	*(0.045)*	*(0.002)*	*(0.042)*
EM	?	-0.376	-0.403	0.571	0.460
		(0.648)	*(0.645)*	*(0.520)*	*(0.629)*
ASSETS	+	0.065	0.087	0.063	0.085
		(0.192)	*(0.205)*	*(0.204)*	*(0.213)*
MTB	+	0.006	0.006	0.006	0.006
		(0.783)	*(0.790)*	*(0.763)*	*(0.773)*
LEVERAGE	+	1.234	1.463	1.221	1.444
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
RECEIVABLES	+	2.010	3.128	2.042	3.161
		(0.005)	*(0.001)*	*(0.005)*	*(0.001)*
pseudo-R^2		0.025	0.031	0.025	0.031
Likelihood ratio		34.282***	43.176	34.489***	43.197
Score test		33.693***	42.083	33.873***	42.094
Wald test		32.551***	40.046	32.679***	40.035
% concordant		59.4	61.8	59.6	62.0
% discordant		39.9	37.6	39.7	37.4
N		1008	1008	1008	1008

Note: Prob($SECURITIZATION_{i,t} = 1$) = $F(\alpha + \beta_1 EM_{i,t} + \beta_3 ASSETS_{i,t-1} + \beta_4 MTB_{i,t-1} + \beta_5 LEVERAGE_{i,t-1} + \beta_6 RECEIVABLS_{i,t-1})$.

[a] Regression model includes industry and year fixed effect where is indicated.

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] In column UE_GainsAdj, the propensity for earnings management (EM) is the difference between income before extraordinary items adjusted for discretionary accruals and securitization gains, and its prior year benchmark.

[d] In column UE_GainsAdj (Absolute), the propensity for earnings management (EM) is absolute value of the difference between income before extraordinary items adjusted for discretionary accruals and securitization gains, and its prior year benchmark.

Table 13. Logit regression of indicator for securitization on earnings management incentive and control variables

		UE_GEAdj[c]	UE_GEAdj	UE_GEAdj (absolute)[d]	UE_GEAdj (absolute)
Fixed Effect[a]		No	Yes	No	Yes
Variable[b]	Expected sign	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)	Coefficient (*p*-value)
Intercept		-1.355	-1.856	-1.360	-1.866
		(0.002)	*(0.045)*	*(0.002)*	*(0.044)*
EM	?	-0.098	-0.142	0.258	0.149
		(0.905)	*(0.871)*	*(0.771)*	*(0.876)*
ASSETS	+	0.064	0.087	0.063	0.086
		(0.194)	*(0.205)*	*(0.200)*	*(0.208)*
MTB	+	0.006	0.006	0.006	0.006
		(0.788)	*(0.797)*	*(0.778)*	*(0.792)*
LEVERAGE	+	1.225	1.454	1.221	1.448
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
RECEIVABLES	+	2.012	3.135	2.024	3.145
		(0.005)	*(0.001)*	*(0.005)*	*(0.001)*
pseudo-R^2		0.024	0.031	0.024	0.031
Likelihood ratio		34.088***	42.990	34.158***	42.987
Score test		33.501***	41.901	33.562***	41.896
Wald test		32.364***	39.872	32.406***	39.861
% concordant		59.5	61.8	59.6	61.9
% discordant		39.9	37.6	39.8	37.6
N		1008	1008	1008	1008

Note: $\text{Prob}(\text{SECURITIZATION}_{i,t} = 1) = F(\alpha + \beta_1 \text{EM}_{i,t} + \beta_3 \text{ASSETS}_{i,t-1} + \beta_4 \text{MTB}_{i,t-1} + \beta_5 \text{LEVERAGE}_{i,t-1} + \beta_6 \text{RECEIVABLS}_{i,t-1})$.

[a] Regression model includes industry and year fixed effect where is indicated.

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] In column UE_GEAdj, the propensity for earnings management (EM) is the difference between income before extraordinary items adjusted for discretionary accruals and securitization gains minus transaction costs, and its prior year benchmark.

[d] In column UE_GEAdj (Absolute), the propensity for earnings management (EM) is absolute value of the difference between income before extraordinary items adjusted for discretionary accruals and securitization gains minus transaction costs, and its prior year benchmark.

Table 14. Logit regression of indicator for securitization on abnormal cash, earnings management incentive, and control variables

		Sale securitization sample			Sale securitization sample w/ fixed effects
Variable[a]	Expected sign	Coefficient (*p*-value)	Marginal Effect[b]	Δ in Prob.[c]	Coefficient (*p*-value)
Intercept		-1.955			-2.815
		(0.000)			*(0.003)*
$CASH^{\varepsilon}$	-	-0.240	-0.057	-0.117	-0.346
		(0.000)			*(0.000)*
EM	?	1.597	0.377	0.016	1.544
		(0.225)			*(0.265)*
$CASH^{\varepsilon}$ x EM	?	-0.264	-0.062	-0.004	-0.256
		(0.679)			*(0.700)*
ASSETS	+	0.175	0.041	0.077	0.279
		(0.002)			*(0.000)*
MTB	+	0.012	0.003	0.007	0.011
		(0.553)			*(0.630)*
LEVERAGE	+	0.875	0.206	0.068	1.115
		(0.001)			*(0.000)*
RECEIVABLES	+	2.138	0.504	0.062	2.929
		(0.004)			*(0.003)*
pseudo-R^2		0.042			0.057
Likelihood ratio		58.573	***		79.208 ***
Score test		56.940	***		75.786 **
Wald test		53.869	***		69.702 **
% concordant		62.9			65.2
% discordant		36.6			34.4
N		1008			1008

Note: $Prob(SECURITIZATION_{i,t} = 1) = F(\alpha + \beta_1 CASH^{\varepsilon}{}_{i,t-1} + \beta_2 EM_{i,t} + \beta_3 CASH^{\varepsilon}{}_{i,t-1} \times EM_{i,t} + \beta_4 ASSETS_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 LEVERAGE_{i,t-1} + \beta_7 RECEIVABLS_{i,t-1})$. $CASH^{\varepsilon}$ = AbnormalCash_FixedEffect, EM = UE_GainsAdj (Absolute).

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Marginal Effect represents the instantaneous effect of a one-unit change in a particular independent variable on the predicted probability of securitization, when covariates of other independent variables are kept fixed. It is calculated by multiplying the estimated coefficient by the logit density function evaluated at the sample means of the data.

[c] Δ in Prob. Represents the change in the probability that a firm engages in securitization given a change in the independent variable from the 25th percentile to the 75th percentile .

Table 15. Logit regression of indicator for securitization on abnormal cash, earnings management incentive, and control variables

		Sale securitization sample			Sale securitization sample w/ fixed effects
Variable[a]	Expected sign	Coefficient (p-value)	Marginal effect[b]	Δ in Prob.[c]	Coefficient (p-value)
Intercept		-1.527			-1.939
		(0.001)			*(0.040)*
$CASH^{\varepsilon}$	-	-0.211	-0.050	-0.091	-0.318
		(0.001)			*(0.000)*
EM	?	1.225	0.289	0.012	1.241
		(0.193)			*(0.220)*
$CASH^{\varepsilon}$ x EM	?	-0.844	-0.199	-0.007	-0.941
		(0.259)			*(0.235)*
ASSETS	+	0.084	0.020	0.037	0.138
		(0.099)			*(0.051)*
MTB	+	0.009	0.002	0.005	0.008
		(0.660)			*(0.709)*
LEVERAGE	+	0.990	0.233	0.077	1.277
		(0.000)			*(0.000)*
RECEIVABLES	+	2.093	0.493	0.061	2.999
		(0.004)			*(0.002)*
pseudo-R^2		0.042			0.058
Likelihood ratio		59.331	***		80.743 ***
Score test		57.495	***		76.998 **
Wald test		54.155	***		70.511 **
% concordant		63.7			65.8
% discordant		35.9			33.9
N		1008			1008

Note: $Prob(SECURITIZATION_{i,t} = 1) = F(\alpha + \beta_1 CASH^{\varepsilon}{}_{i,t-1} + \beta_2 EM_{i,t} + \beta_3 CASH^{\varepsilon}{}_{i,t-1} \times EM_{i,t} + \beta_4 ASSETS_{i,t-1} + \beta_5 MTB_{i,t-1} + \beta_6 LEVERAGE_{i,t-1} + \beta_7 RECEIVABLS_{i,t-1})$. $CASH^{\varepsilon}$ = AbnormalCash_FM, EM = UE_GainsAdj (Absolute).

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Marginal Effect represents the instantaneous effect of a one-unit change in a particular independent variable on the predicted probability of securitization, when covariates of other independent variables are kept fixed. It is calculated by multiplying the estimated coefficient by the logit density function evaluated at the sample means of the data.

[c] Δ in Prob. Represents the change in the probability that a firm engages in securitization given a change in the independent variable from the 25th percentile to the 75th percentile.

Table 16. Descriptive statistics for investment expenditure and free cash flow

Panel A: Compustat sample (N = 22,280)

Variables[a]	Mean	STD	P1	Q1	Median	Q3	P99
Original model:							
CF_{AIP}	0.054	0.133	-0.523	0.006	0.061	0.121	0.381
I^{*}_{NEW}	0.077	0.077	-0.039	0.024	0.059	0.113	0.367
I^{ε}_{NEW}	0.000	0.084	-0.205	-0.043	-0.010	0.026	0.328
FCF	-0.022	0.152	-0.732	-0.064	0.006	0.061	0.253
Decomposition model:							
CF_{AIP}	0.055	0.131	-0.523	0.006	0.061	0.121	0.380
I^{*}_{NEW}	0.077	0.076	-0.036	0.026	0.060	0.110	0.374
I^{ε}_{NEW}	0.000	0.083	-0.204	-0.043	-0.011	0.025	0.328
FCF	-0.022	0.151	-0.741	-0.062	0.006	0.060	0.251

Panel B: Securitization sample (N = 860)

Original model:							
CF_{AIP}	0.051	0.071	-0.141	0.014	0.048	0.088	0.251
I^{*}_{NEW}	0.039	0.044	-0.037	0.010	0.034	0.060	0.192
I^{ε}_{NEW}	0.003	0.066	-0.133	-0.028	-0.004	0.019	0.283
FCF	0.012	0.076	-0.198	-0.025	0.016	0.055	0.226
Decomposition model:							
CF_{AIP}	0.051	0.071	-0.141	0.014	0.048	0.088	0.251
I^{*}_{NEW}	0.040	0.043	-0.036	0.011	0.035	0.062	0.183
I^{ε}_{NEW}	0.003	0.065	-0.125	-0.030	-0.006	0.017	0.284
FCF	0.011	0.074	-0.192	-0.024	0.015	0.053	0.218

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

Table 17. Descriptive statistics for investment expenditure subsequent to securitization

Panel A: Comparison of sample means

# of years after securitization		0	1	2	3	4	5
I_{NEW}	Securitization	0.046	0.042	0.042	0.044	0.047	0.044
	Non-securitization	0.061	0.052	0.052	0.057	0.059	0.062
Original Model							
I^{*}_{NEW}	Securitization	0.041	0.039	0.042	0.044	0.046	0.047
	Non-securitization	0.061	0.058	0.054	0.055	0.057	0.059
I^{ε}_{NEW}	Securitization	0.004	0.002	0.001	-0.001	0.000	-0.002
	Non-securitization	0.000	-0.006	-0.002	0.002	0.002	0.002
Decomposition Model							
I^{*}_{NEW}	Securitization	0.041	0.040	0.043	0.046	0.049	0.049
	Non-securitization	0.060	0.058	0.054	0.055	0.057	0.059
I^{ε}_{NEW}	Securitization	0.004	0.001	-0.001	-0.003	-0.002	-0.004
	Non-securitization	0.001	-0.006	-0.002	0.001	0.002	0.003
N[a]		618	559	460	373	285	214

Panel B: Comparison of Sample Medians

# of years after securitization		0	1	2	3	4	5
I_{NEW}	Securitization	0.025	0.022	0.024	0.027	0.028	0.027
	Non-securitization	0.039	0.033	0.036	0.032	0.036	0.033
Original Model							
I^{*}_{NEW}	Securitization	0.035	0.033	0.035	0.038	0.039	0.040
	Non-securitization	0.050	0.047	0.045	0.046	0.044	0.048
I^{ε}_{NEW}	Securitization	-0.005	-0.005	-0.006	-0.008	-0.008	-0.007
	Non-securitization	-0.008	-0.009	-0.009	-0.007	-0.005	-0.005
Cash decomposition model							
I^{*}_{NEW}	Securitization	0.036	0.036	0.038	0.041	0.043	0.036
	Non-securitization	0.050	0.049	0.048	0.050	0.046	0.050
I^{ε}_{NEW}	Securitization	-0.006	-0.007	-0.008	-0.011	-0.011	-0.006
	Non-securitization	-0.009	-0.010	-0.009	-0.009	-0.006	-0.009
N		618	559	460	373	285	214

[a] N is the number of observation for each securitization and non-securitization group. Sample sizes for the groups are kept constant by requiring a paired firm-year observation to have available I^{*}_{NEW} and I^{ε}_{NEW} estimates for both groups. All variables are winsorized at the 1st and 99th percentile levels.

Table 18. Descriptive statistics for investment expenditure subsequent to securitization: Securitization gains sample versus non-gains sample[a]

# Year after securitization		0		1		2		3		4		5	
Variable	Stat.	Gains	NonG	Gains	NonG	Gains	NonG	Gains	NonG	Gains	NonG	Gains	NonG
I_{NEW}	Mean	0.042	0.045	0.042	0.041	0.036	0.042	0.037	0.044	0.032	0.042	0.025	0.039
	Med	0.032	0.023	0.023	0.022	0.021	0.023	0.026	0.024	0.023	0.024	0.026	0.024
	N[b]	86	912	87	852	82	725	75	595	67	485	56	372
Original Model													
I^{*}_{NEW}	Mean	0.037	0.039	0.037	0.038	0.041	0.039	0.043	0.041	0.042	0.043	0.041	0.041
	Med	0.038	0.033	0.038	0.032	0.038	0.033	0.038	0.035	0.040	0.036	0.040	0.037
I^{ε}_{NEW}	Mean	0.000	0.004	0.000	0.002	-0.007	0.003	-0.006	0.002	-0.010	-0.001	-0.014	-0.002
	Med	0.001	-0.004	-0.006	-0.003	-0.008	-0.005	-0.010	-0.006	-0.011	-0.005	-0.013	-0.004
	N	79	864	81	820	78	703	73	580	66	468	55	355
Cash Decomposition Model													
I^{*}_{NEW}	Mean	0.045	0.040	0.043	0.039	0.048	0.041	0.049	0.043	0.047	0.045	0.045	0.044
	Med	0.050	0.034	0.047	0.033	0.047	0.036	0.047	0.038	0.047	0.040	0.047	0.040
I^{ε}_{NEW}	Mean	-0.002	0.003	-0.002	0.002	-0.010	0.001	-0.009	0.000	-0.014	-0.002	-0.018	-0.004
	Med	-0.005	-0.006	-0.014	-0.006	-0.015	-0.007	-0.019	-0.008	-0.019	-0.008	-0.014	-0.007
	N	64	796	66	759	65	654	61	545	55	444	45	342

[a] Securitization Gains Sample consists of all securitization firms reporting securitization gains in Form 10-K. Non-Gains Sample consists of all securitization firms (i.e. firms recording securitizations as sales, secured borrowings, or consolidations of SPEs) without reporting securitization gains. All variables are winsorized at the 1st and 99th percentile levels.

[b] Sample size reflects the maximum number of observations with available data for a particular variable.

Table 19. OLS regression of overinvestment on free cash flow and earnings management

Panel A: Dependent variable[a] = $I^{\varepsilon}_{NEW\ i,t}$

Model[b]	Intercept	FCF<0	FCF>0	SecEM_M	SecEM_B	Adj. R^2	N[c]
FCF	0.004	0.249	0.148			0.054	943
	(0.181)	*(0.000)*	*(0.002)*				
EM_1	0.005	0.250	0.151	-0.008	-0.007	0.055	943
	(0.137)	*(0.000)*	*(0.002)*	*(0.442)*	*(0.509)*		
EM_2	0.005	0.253	0.148	-0.009	-0.007	0.056	943
	(0.094)	*(0.000)*	*(0.002)*	*(0.421)*	*(0.257)*		
EM_3	0.005	0.253	0.149	-0.008	-0.007	0.056	943
	(0.096)	*(0.000)*	*(0.002)*	*(0.409)*	*(0.284)*		

Panel B: Dependent variable = $I^{\varepsilon}_{NEW\ i,t+1}$

Model	Intercept	FCF<0	FCF>0	SecEM_M	SecEM_B	Adj. R^2	N
FCF	0.005	0.337	0.110			0.077	892
	(0.092)	*(0.000)*	*(0.022)*				
EM_1	0.005	0.338	0.111	0.000	-0.007	0.077	892
	(0.081)	*(0.000)*	*(0.021)*	*(0.994)*	*(0.466)*		
EM_2	0.005	0.333	0.111	-0.014	0.003	0.079	892
	(0.112)	*(0.000)*	*(0.021)*	*(0.191)*	*(0.592)*		
EM_3	0.004	0.335	0.110	0.001	0.004	0.077	892
	(0.165)	*(0.000)*	*(0.022)*	*(0.930)*	*(0.464)*		

Note: $I^{\varepsilon}_{NEW\ i,t\ or\ t+1} = F(\alpha + \beta_1 FCF{<}0_{i,t} + \beta_2 FCF{>}0_{i,t} + \beta_3 SecEM\_M_{i,t} + \beta_4 SecEM\_B_{i,t})$.

[a] Dependent variable, abnormal investment (I^{ε}_{NEW}), is estimated using the original investment expenditure model in Richardson (2006).

[b] The FCF model includes only free cash flow variables. Model EM_1, EM_2, and EM3 include earnings management variables estimated according to the first, second, and third approach specified in the methodology section respectively. All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] Sample consists of all securitization firm-years with available data.

Table 20. OLS regression of overinvestment on free cash flow and earnings management

Panel A: Dependent variable[a] = $I^{\varepsilon}_{NEW\ i,t}$

Model[b]	Intercept	FCF<0	FCF>0	SecEM_M	SecEM_B	Adj. R^2	*N*[c]
FCF	0.001	0.178	0.156			0.036	860
	(0.657)	*(0.001)*	*(0.002)*				
EM_1	0.002	0.176	0.160	-0.011	-0.006	0.038	860
	(0.564)	*(0.001)*	*(0.002)*	*(0.343)*	*(0.643)*		
EM_2	0.003	0.180	0.156	-0.011	-0.007	0.039	860
	(0.412)	*(0.001)*	*(0.003)*	*(0.373)*	*(0.272)*		
EM_3	0.003	0.180	0.156	-0.011	-0.007	0.039	860
	(0.411)	*(0.001)*	*(0.002)*	*(0.314)*	*(0.299)*		

Panel B: Dependent variable = $I^{\varepsilon}_{NEW\ i,t+1}$

Model	Intercept	FCF<0	FCF>0	SecEM_M	SecEM_B	Adj. R^2	*N*
FCF	0.002	0.272	0.128			0.057	817
	(0.479)	*(0.000)*	*(0.013)*				
EM_1	0.002	0.273	0.130	0.001	-0.009	0.058	817
	(0.445)	*(0.000)*	*(0.012)*	*(0.898)*	*(0.411)*		
EM_2	0.002	0.265	0.131	-0.013	0.004	0.060	817
	(0.563)	*(0.000)*	*(0.011)*	*(0.249)*	*(0.517)*		
EM_3	0.001	0.269	0.128	0.002	0.005	0.517	817
	(0.688)	*(0.000)*	*(0.013)*	*(0.815)*	*(0.381)*		

Note: $I^{\varepsilon}_{NEW\ i,t\ or\ t+1} = F(\alpha + \beta_1 FCF{<}0_{i,t} + \beta_2 FCF{>}0_{i,t} + \beta_3 SecEM\_M_{i,t} + \beta_4 SecEM\_B_{i,t})$.

[a] Dependent variable, abnormal investment (I^{ε}_{NEW}), is estimated using the revised investment expenditure model in Richardson (2006), where the explanatory variable CASH is decomposed into the predicted level of cash a firm should hold ($CASH^{*}$) and the level of abnormal cash ($CASH^{\varepsilon}$) as estimated in table X

[b] The FCF model includes only free cash flow variables. Model EM_1, EM_2, and EM3 include earnings management variables estimated according to the first, second, and third approach specified in the methodology section respectively. All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] Sample consists of all securitization firm-years with available data.

Table 21. OLS regression of overinvestment on free cash flow and earnings management

Panel A: Dependent variable[a] = $I^{\varepsilon}_{NEW\ i,t}$

Model[b]	Intercept	FCF<0	FCF>0	SecEM_M[c]	SecEM_B	Adj. R^2	N[c]
FCF	0.004	0.249	0.148			0.054	943
	(0.181)	*(0.000)*	*(0.002)*				
EM_1	0.005	0.249	0.151	-0.008	-0.007	0.055	943
	(0.140)	*(0.000)*	*(0.002)*	*(0.409)*	*(0.555)*		
EM_2	0.005	0.252	0.149	-0.008	-0.005	0.055	943
	(0.107)	*(0.000)*	*(0.002)*	*(0.464)*	*(0.375)*		
EM_3	0.005	0.252	0.149	-0.009	-0.005	0.055	943
	(0.106)	*(0.000)*	*(0.002)*	*(0.380)*	*(0.401)*		

Panel B: Dependent variable = $I^{\varepsilon}_{NEW\ i,t+1}$

Model	Intercept	FCF<0	FCF>0	SecEM_M	SecEM_B	Adj. R^2	N
FCF	0.005	0.337	0.110			0.077	892
	(0.092)	*(0.000)*	*(0.022)*				
EM_1	0.005	0.338	0.111	0.003	-0.008	0.077	892
	(0.087)	*(0.000)*	*(0.021)*	*(0.769)*	*(0.451)*		
EM_2	0.004	0.331	0.112	-0.012	0.005	0.080	892
	(0.177)	*(0.000)*	*(0.020)*	*(0.236)*	*(0.286)*		
EM_3	0.004	0.334	0.110	0.004	0.007	0.079	892
	(0.265)	*(0.000)*	*(0.022)*	*(0.648)*	*(0.193)*		

Note: $I^{\varepsilon}_{NEW\ i,t\ or\ t+1} = F(\alpha + \beta_1 FCF{<}0_{i,t} + \beta_2 FCF{>}0_{i,t} + \beta_3 SecEM\_M_{i,t} + \beta_4 SecEM\_B_{i,t})$.

[a] Dependent variable, abnormal investment (I^{ε}_{NEW}), is estimated using the original investment expenditure model in Richardson (2006).

[b] The FCF model includes only free cash flow variables. Model EM_1, EM_2, and EM3 include earnings management variables estimated according to the first, second, and third approach specified in the methodology section respectively. All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] The earnings management variable is based on the securitization gains (losses) adjusted for transaction costs.

[d] Sample consists of all securitization firm-years with available data.

Table 22. OLS regression of overinvestment on free cash flow and earnings management

Panel A: Dependent variable[a] = $I^{\varepsilon}_{NEW\ i,t}$

Model[b]	Intercept	FCF<0	FCF>0	SecEM_M[c]	SecEM_B	Adj. R^2	N[d]
FCF	0.001	0.178	0.156			0.036	860
	(0.657)	*(0.001)*	*(0.002)*				
EM_1	0.002	0.175	0.160	-0.012	-0.004	0.038	860
	(0.575)	*(0.001)*	*(0.002)*	*(0.309)*	*(0.723)*		
EM_2	0.003	0.180	0.157	-0.011	-0.004	0.038	860
	(0.452)	*(0.001)*	*(0.002)*	*(0.411)*	*(0.411)*		
EM_3	0.003	0.179	0.157	-0.012	-0.004	0.038	860
	(0.444)	*(0.001)*	*(0.002)*	*(0.285)*	*(0.452)*		

Panel B: Dependent variable = $I^{\varepsilon}_{NEW\ i,t+1}$

Model	Intercept	FCF<0	FCF>0	SecEM_M	SecEM_B	Adj. R^2	N
FCF	0.002	0.272	0.128			0.057	817
	(0.479)	*(0.000)*	*(0.013)*				
EM_1	0.002	0.274	0.129	0.005	-0.010	0.058	817
	(0.464)	*(0.000)*	*(0.012)*	*(0.652)*	*(0.408)*		
EM_2	0.001	0.264	0.132	-0.012	0.006	0.060	817
	(0.723)	*(0.000)*	*(0.011)*	*(0.297)*	*(0.262)*		
EM_3	0.001	0.270	0.128	0.007	0.007	0.060	817
	(0.882)	*(0.000)*	*(0.013)*	*(0.535)*	*(0.166)*		

Note: $I^{\varepsilon}_{NEW\ i,t\ or\ t+1} = F(\alpha + \beta_1 FCF{<}0_{i,t} + \beta_2 FCF{>}0_{i,t} + \beta_3\, SecEM\_M_{i,t} + \beta_4\, SecEM\_B_{i,t})$.

[a] Dependent variable, abnormal investment (I^{ε}_{NEW}), is estimated using the revised investment expenditure model in Richardson (2006), where the explanatory variable CASH is decomposed into the predicted level of cash a firm should hold ($CASH^{*}$) and the level of abnormal cash ($CASH^{\varepsilon}$) as estimated in table X

[b] The FCF model includes only free cash flow variables. Model EM_1, EM_2, and EM3 include earnings management variables estimated according to the first, second, and third approach specified in the methodology section respectively. All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] The earnings management variable is based on the securitization gains (losses) adjusted for transaction costs.

[d] Sample consists of all securitization firm-years with available data.

Table 23. Descriptive statistics for market valuation variables

Panel A: Securitization sample versus non-securitization sample[a]

Variable[b]	Sample	Mean	STD	Q1	Median	Q3
P_t	SECU	28.54	19.39	14.58	24.06	39.78
	NON-SECU	19.77	18.75	5.62	14.30	27.95
P_{t+3mos}	SECU	28.31	19.75	13.79	24.04	39.21
	NON-SECU	19.65	18.66	5.50	14.10	28.00
$\Delta CASH_t$	SECU	0.386	1.976	-0.225	0.122	0.863
	NON-SECU	0.223	1.719	-0.311	0.041	0.580
$\Delta ONOA_t$	SECU	-0.029	5.580	-1.727	0.018	1.652
	NON-SECU	0.113	4.445	-0.619	0.046	1.025
ΔSA_t	SECU	0.525	2.791	-0.371	0.177	0.988
	NON-SECU	0.588	2.899	-0.112	0.059	0.409
$DIST\_EQ_t$	SECU	0.656	2.731	-0.350	0.317	1.659
	NON-SECU	0.075	1.958	-0.357	-0.015	0.545
$DIST\_D_t$	SECU	-0.564	4.452	-1.338	0.056	1.154
	NON-SECU	-0.423	3.015	-0.424	0.000	0.309
BV_{t-1}	SECU	13.261	9.196	7.023	11.244	17.731
	NON SECU	8.434	7.658	3.031	6.576	11.601

Panel B: Securitization firms vs. non-securitization firms[c]

Variable	Sample	Mean	STD	Q1	Median	Q3
P_t	SECU	28.13	19.85	13.79	23.59	38.49
	NON-SECU	19.46	18.62	5.44	13.99	27.51
P_{t+3mos}	SECU	28.03	19.86	13.57	23.86	38.36
	NON-SECU	19.34	18.53	5.31	13.80	27.58
$\Delta CASH_t$	SECU	0.329	1.960	-0.291	0.097	0.716
	NON-SECU	0.221	1.710	-0.309	0.039	0.577
$\Delta ONOA_t$	SECU	0.270	5.783	-1.501	0.059	1.862
	NON-SECU	0.095	4.374	-0.600	0.045	0.997
ΔSA_t	SECU	0.498	2.901	-0.367	0.150	0.847
	NON-SECU	0.593	2.895	-0.108	0.057	0.397
$DIST\_EQ_t$	SECU	0.625	2.758	-0.338	0.325	1.548
	NON-SECU	0.055	1.916	-0.358	-0.018	0.512
$DIST\_D_t$	SECU	-0.694	4.584	-1.473	0.043	1.152
	NON-SECU	-0.407	2.929	-0.394	0.000	0.288
BV_{t-1}	SECU	13.025	9.099	6.786	11.221	17.575
	NON SECU	8.268	7.553	2.963	6.426	11.373

[a] SECU consists of 974 securitization transactions during the sample period. NON-SECU consists of 24720 firm-year observations without any securitization transactions in the respective year.

[b] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[c] SECU consists of 1866 firm-year observations which have at least one securitization transaction during the sample period. NON-SECU consists of 23808 firm-year observations without any securitization transactions during the sample period.

Table 24. Pearson correlation for market valuation variable

Panel A: Securitization sample[a]

	P_t	P_{t+3mos}	$\Delta CASH_t$	$\Delta ONOA_t$	ΔSA_t	$DIST\_EQ_t$	$DIST\_D_t$
P_{t+3mos}	0.947	1					
	(0.000)						
$\Delta CASH_t$	0.080	0.058	1				
	(0.012)	*(0.072)*					
$\Delta ONOA_t$	0.229	0.233	-0.126	1			
	(0.000)	*(0.000)*	*(0.000)*				
ΔSA_t	0.240	0.240	-0.038	0.094	1		
	(0.000)	*(0.000)*	*(0.232)*	*(0.003)*			
$DIST\_EQ_t$	0.036	0.017	-0.119	-0.420	-0.180	1	
	(0.264)	*(0.600)*	*(0.000)*	*(0.000)*	*(0.000)*		
$DIST\_D_t$	-0.100	-0.081	-0.127	-0.502	-0.418	-0.026	1
	(0.002)	*(0.011)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.416)*	
BV_{t-1}	0.427	0.410	0.026	-0.051	0.037	0.241	-0.004
	(0.000)	*(0.000)*	*(0.410)*	*(0.112)*	*(0.253)*	*(0.000)*	*(0.913)*

Panel B: Securitization firms[b]

	P_t	P_{t+3mos}	$\Delta CASH_t$	$\Delta ONOA_t$	ΔSA_t	$DIST\_EQ_t$	$DIST\_D_t$
P_{t+3mos}	0.952	1					
	(0.000)						
$\Delta CASH_t$	0.075	0.076	1				
	(0.001)	*(0.001)*					
$\Delta ONOA_t$	0.207	0.202	-0.135	1			
	(0.000)	*(0.000)*	*(0.000)*				
ΔSA_t	0.190	0.182	0.008	0.138	1		
	(0.000)	*(0.000)*	*(0.724)*	*(0.000)*			
$DIST\_EQ_t$	0.074	0.067	-0.158	-0.350	-0.157	1	
	(0.001)	*(0.003)*	*(0.000)*	*(0.000)*	*(0.000)*		
$DIST\_D_t$	-0.103	-0.085	-0.121	-0.542	-0.397	-0.031	1
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.177)*	
BV_{t-1}	0.360	0.360	0.028	-0.008	0.057	0.239	-0.077
	(0.000)	*(0.000)*	*(0.223)*	*(0.713)*	*(0.013)*	*(0.000)*	*(0.001)*

[a] Panel A consists of 974 securitization transactions during the sample period.

[b] Panel B consists of 1866 firm-year observations which have at least one securitization transaction during the sample period..

Table 25. Market valuation of securitizable assets in accruals

		Dependent variable = $P_{i,t}$			Dependent variable = $P_{i,t+3mos}$		
Variable[a]	Expected sign	CSTAT[b]	SECU[c]	NON SECU[d]	CSTAT	SECU	NON SECU
Intercept	?	8.767	17.180	8.242	8.618	17.085	8.100
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔCASH	+	2.958	1.999	3.073	2.978	2.030	3.095
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔONOA	+	2.121	1.527	2.238	2.138	1.541	2.256
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔSA	+	2.069	1.811	2.178	2.156	1.802	2.271
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_EQ	+	1.575	1.709	1.540	1.732	1.675	1.729
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_D	+	1.727	1.292	1.830	1.814	1.376	1.914
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
BV	+	1.137	0.676	1.173	1.136	0.681	1.171
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Contrasts[e]:							
ΔSA = ΔONOA		*0.127*	*0.082*	*0.081*	*0.594*	*0.110*	*0.658*
ΔSA = ΔCASH		*0.000*	*0.452*	*0.000*	*0.000*	*0.364*	*0.000*
ΔCASH = ΔONOA		*0.000*	*0.023*	*0.000*	*0.000*	*0.018*	*0.000*
Adj. R^2		0.402	0.256	0.414	0.410	0.255	0.422
N		25694	1886	23808	25694	1886	23808

Note: $P_{i,t} = F(\alpha + \beta_1 \Delta CASH_{i,t} + \beta_2 \Delta ONOA_{i,t} + \beta_3 \Delta SA_{i,t} + \beta_4 DIST\_EQ_{i,t} + \beta_5 DIST\_D_{i,t} + \beta_6 BV_{i,t-1})$.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Column CSTAT uses a sample of all Compustat firm-year observations with available data to estimate key variables during the sample period.

[c] Column SECU uses a sample of securitization firms with available data to estimate key variables during the sample period. A firm is defined as a securitization firm if it has at least one securitization transaction during the sample period.

[d] Column NON-SECU uses a sample of non-securitization firms with available data to estimate key variables during the sample period.

[e] P-value is presented for the tests of coefficient equality between key independent variables.

Table 26. Market valuation of securitizable assets in accruals: Firm-year fixed effects

		Dependent variable = $P_{i,t}$			Dependent variable = $P_{i,t+3mos}$		
Variable[a]	Expected sign	CSTAT[b]	SECU[c]	NON SECU[d]	CSTAT	SECU	NON SECU
ΔCASH	+	1.597	0.940	1.731	1.475	0.808	1.606
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔONOA	+	1.140	0.615	1.271	1.061	0.572	1.180
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔSA	+	1.334	0.981	1.474	1.248	0.893	1.375
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_EQ	+	0.050	0.084	0.078	0.177	0.157	0.215
		(0.304)	*(0.557)*	*(0.131)*	*(0.000)*	*(0.265)*	*(0.000)*
DIST_D	+	0.984	0.512	1.111	0.956	0.504	1.071
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
BV	+	0.859	0.577	0.914	0.761	0.475	0.816
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Contrasts[e]:							
ΔSA = ΔONOA		*0.000*	*0.002*	*0.000*	*0.000*	*0.005*	*0.000*
ΔSA = ΔCASH		*0.000*	*0.811*	*0.000*	*0.000*	*0.606*	*0.000*
ΔCASH = ΔONOA		*0.000*	*0.020*	*0.000*	*0.000*	*0.085*	*0.000*
Adj. R^2		0.786	0.738	0.783	0.794	0.748	0.797
N		25694	1886	23808	25694	1886	23808

Note: $P_{i,t} = F(\alpha + \beta_1 \Delta CASH_{i,t} + \beta_2 \Delta ONOA_{i,t} + \beta_3 \Delta SA_{i,t} + \beta_4 DIST\_EQ_{i,t} + \beta_5 DIST\_D_{i,t} + \beta_6 BV_{i,t-1})$.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Column CSTAT uses a sample of all Compustat firm-year observations with available data to estimate key variables during the sample period.

[c] Column SECU uses a sample of securitization firms with available data to estimate key variables during the sample period. A firm is defined as a securitization firm if it has at least one securitization transaction during the sample period.

[d] Column NON-SECU uses a sample of non-securitization firms with available data to estimate key variables during the sample period.

[e] P-value is presented for the tests of coefficient equality between key independent variables.

Table 27. Market valuation of securitizable assets in accruals: Industry effect

		Dependent variable = $P_{i,t}$			Dependent variable = $P_{i,t+3mos}$		
Variable[a]	Expected sign	CSTAT[b]	SECU[c]	NON SECU[d]	CSTAT	SECU	NON SECU
ΔCASH	+	3.660	1.800	3.947	3.645	1.808	3.928
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔONOA	+	2.477	1.322	2.748	2.494	1.319	2.765
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔSA	+	3.090	1.710	3.638	3.061	1.679	3.590
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_EQ	+	2.137	1.375	2.287	2.267	1.328	2.442
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_D	+	2.177	1.137	2.455	2.275	1.196	2.556
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
BV	+	1.199	0.742	1.227	1.182	0.734	1.208
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Contrasts[e]:							
ΔSA = ΔONOA		*0.000*	*0.014*	*0.000*	*0.000*	*0.023*	*0.000*
ΔSA = ΔCASH		*0.000*	*0.704*	*0.003*	*0.000*	*0.589*	*0.001*
ΔCASH = ΔONOA		*0.000*	*0.015*	*0.000*	*0.000*	*0.013*	*0.000*
Adj. R^2		0.462	0.370	0.484	0.464	0.365	0.487
N^f		24168	1880	22288	24168	1880	22288

Note: $P_{i,t} = F(\alpha + \beta_1 \Delta CASH_{i,t} + \beta_2 \Delta ONOA_{i,t} + \beta_3 \Delta SA_{i,t} + \beta_4 DIST\_EQ_{i,t} + \beta_5 DIST\_D_{i,t} + \beta_6 BV_{i,t-1})$.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Column CSTAT uses a sample of all Compustat firm-year observations with available data to estimate key variables during the sample period.

[c] Column SECU uses a sample of securitization firms with available data to estimate key variables during the sample period. A firm is defined as a securitization firm if it has at least one securitization transaction during the sample period.

[d] Column NON-SECU uses a sample of non-securitization firms with available data to estimate key variables during the sample period.

[e] P-value is presented for the tests of coefficient equality between key independent variables.

[f] Sample size is reduced due to dropping observations without industry classification.

Table 28. Market valuation of the use of securitization proceeds

		Dependent variable = $P_{i,t}$			Dependent variable = $P_{i,t+3mos}$		
Variable[a]	Expected sign	LEVEL[b]	RANK[c]	SIGN[d]	LEVEL	RANK	SIGN
Intercept	?	14.448	13.438	13.235	14.650	13.658	13.257
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔCASH	+	3.073	3.485	4.495	2.821	3.155	4.521
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔCASHxLiquidity	-	-0.190	-0.332	-1.928	-0.192	-0.298	-2.234
		(0.479)	*(0.285)*	*(0.090)*	*(0.482)*	*(0.345)*	*(0.054)*
ΔONOA	+	2.540	2.579	2.298	2.655	2.687	2.561
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔONOAxLiquidity	-	-0.087	-0.073	0.232	-0.095	-0.073	0.019
		(0.304)	*(0.425)*	*(0.323)*	*(0.271)*	*(0.430)*	*(0.936)*
ΔSA	+	3.253	3.248	3.269	3.267	3.263	3.274
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_EQ	+	2.584	2.596	2.637	2.506	2.516	2.535
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_D	+	2.288	2.274	2.272	2.425	2.408	2.407
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
BV	+	0.794	0.791	0.790	0.780	0.778	0.776
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Liquidity	?	1.202	1.218	2.783	1.151	1.184	2.994
		(0.001)	*(0.008)*	*(0.019)*	*(0.002)*	*(0.011)*	*(0.013)*
Adj. R^2		0.412	0.409	0.409	0.404	0.401	0.402
N		881	881	881	881	881	881

Note: $P_{i,t} = F(\alpha + \beta_1 \Delta CASH_{i,t} \text{ x Liquidity}_{i,t-1} + \beta_2 \Delta ONOA_{i,t} \text{ x Liquidity}_{i,t-1} + \beta_3 \Delta SA_{i,t} + \beta_4 DIST\_EQ_{i,t} + \beta_5 DIST\_D_{i,t} + \beta_6 BV_{i,t-1} + \beta_7 Liquidity_{i,t-1})$.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Column LEVEL measures Liquidity using the level of abnormal cash holdings ($CASH^{\varepsilon}$) estimated while controlling for firm and year fixed effects in the cash model regression.

[c] Column RANK measures Liquidity by the rankings of $CASH^{\varepsilon}$ in four quartiles.

[d] Column SIGN measures Liquidity using an indicator variable which equals to 1 if $CASH^{\varepsilon}$ is positive and 0 otherwise.

Table 29. Market valuation of the use of securitization proceeds: Firm-year fixed effects

		Dependent variable = $P_{i,t}$			Dependent variable = $P_{i,t+3mos}$		
Variable[a]	Expected sign	LEVEL[b]	RANK[c]	SIGN[d]	LEVEL	RANK	SIGN
ΔCASH	+	1.682	2.175	1.381	1.130	1.468	1.124
		(0.000)	*(0.000*	*(0.071)*	*(0.005)*	*(0.012)*	*(0.157)*
ΔCASHxLiquidity	-	-0.180	-0.336	0.011	-0.112	-0.222	-0.065
		(0.346)	*(0.127)*	*(0.989)*	*(0.572)*	*(0.333)*	*(0.936)*
ΔONOA	+	1.267	1.320	1.240	1.253	1.261	1.325
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔONOAxLiquidity	-	-0.084	-0.073	-0.075	-0.089	-0.056	-0.226
		(0.155)	*(0.255)*	*(0.662)*	*(0.149)*	*(0.400)*	*(0.202)*
ΔSA	+	2.052	2.061	2.058	1.771	1.772	1.784
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_EQ	+	0.485	0.499	0.467	0.516	0.525	0.502
		(0.033)	*(0.029)*	*(0.041)*	*(0.029)*	*(0.027)*	*(0.034)*
DIST_D	+	1.372	1.377	1.339	1.336	1.322	1.308
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
BV	+	0.786	0.782	0.799	0.629	0.629	0.637
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Liquidity	?	0.044	0.253	0.054	-0.806	-0.735	0.033
		(0.937)	*(0.686)*	*(0.967)*	*(0.162)*	*(0.258)*	*(0.981)*
Adj. R^2		0.850	0.850	0.849	0.842	0.841	0.841
N		881	881	881	881	881	881

Note: $P_{i,t} = F(\alpha + \beta_1 \Delta CASH_{i,t} \text{ x Liquidity}_{i,t-1} + \beta_2 \Delta ONOA_{i,t} \text{ x Liquidity}_{i,t-1} + \beta_3 \Delta SA_{i,t} + \beta_4 DIST\_EQ_{i,t} + \beta_5 DIST\_D_{i,t} + \beta_6 BV_{i,t-1} + \beta_7 \text{Liquidity}_{i,t-1})$.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Column LEVEL measures Liquidity using the level of abnormal cash holdings ($CASH^{\varepsilon}$) estimated while controlling for firm and year fixed effects in the cash model regression.

[c] Column RANK measures Liquidity by the rankings of $CASH^{\varepsilon}$ in four quartiles.

[d] Column SIGN measures Liquidity using an indicator variable which equals to 1 if $CASH^{\varepsilon}$ is positive and 0 otherwise.

Table 30. Market valuation of the use of securitization proceeds: Industry effect

		Dependent variable = $P_{i,t}$			Dependent variable = $P_{i,t+3mos}$		
Variable[a]	Expected sign	LEVEL[b]	RANK[c]	SIGN[d]	LEVEL	RANK	SIGN
ΔCASH	+	2.482	2.673	3.088	2.152	2.282	3.033
		(0.000)	*(0.000)*	*(0.002)*	*(0.000)*	*(0.001)*	*(0.004)*
ΔCASHxLiquidity	-	-0.013	-0.113	-0.751	-0.001	-0.074	-1.017
		(0.959)	*(0.687)*	*(0.471)*	*(0.996)*	*(0.799)*	*(0.344)*
ΔONOA	+	2.428	2.486	2.096	2.536	2.585	2.344
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
ΔONOAxLiquidity	-	-0.077	-0.077	0.380	-0.102	-0.086	0.153
		(0.319)	*(0.356)*	*(0.077)*	*(0.203)*	*(0.313)*	*(0.492)*
ΔSA	+	3.182	3.173	3.190	3.138	3.130	3.137
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_EQ	+	2.383	2.384	2.435	2.278	2.278	2.305
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
DIST_D	+	2.193	2.183	2.177	2.300	2.285	2.278
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
BV	+	0.957	0.958	0.954	0.913	0.914	0.910
		(0.000)	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*	*(0.000)*
Liquidity	?	0.716	0.565	0.844	0.521	0.442	0.911
		(0.058)	*(0.224)*	*(0.464)*	*(0.181)*	*(0.357)*	*(0.443)*
Adj. R^2		0.557	0.556	0.557	0.540	0.539	0.539
N[f]		879	879	879	879	879	879

Note: $P_{i,t} = F(\alpha + \beta_1 \Delta CASH_{i,t} \text{ x Liquidity}_{i,t-1} + \beta_2 \Delta ONOA_{i,t} \text{ x Liquidity}_{i,t-1} + \beta_3 \Delta SA_{i,t} + \beta_4 DIST\_EQ_{i,t} + \beta_5 DIST\_D_{i,t} + \beta_6 BV_{i,t-1} + \beta_7 \text{Liquidity}_{i,t-1})$.

[a] All variables are defined in Appendix C and are winsorized at the 1st and 99th percentile levels.

[b] Column LEVEL measures Liquidity using the level of abnormal cash holdings ($CASH^{\varepsilon}$) estimated while controlling for firm and year fixed effects in the cash model regression.

[c] Column RANK measures Liquidity by the rankings of $CASH^{\varepsilon}$ in four quartiles.

[d] Column SIGN measures Liquidity using an indicator variable which equals to 1 if $CASH^{\varepsilon}$ is positive and 0 otherwise.

[f] Sample size is reduced due to dropping observations without industry classification.

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