

Customer Risk and Corporate Financial Policy:

Evidence from Receivables Securitization

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ABSTRACT

This study provides novel evidence that customer risk affects corporate financial policy through a channel of receivables securitization. We use data on asset backed securitization (ABS) collected from firm SEC filings and match these firms with their principal customer firms. We find that customer firm credit risk negatively affects the leverage level of the special purpose entity (SPE) and also SPE financing capacity in an ABS. The evidence demonstrates that customer firm risk affects corporate financial policy indirectly through the receivables to be securitized. The significant role of customer risk on ABS outcomes also highlights the feature of credit risk separation between the securitized assets in an ABS and firm remaining assets. In addition, we find that higher concentration risk of receivables leads to lower SPE leverage and financing capacity. Overall, our study identifies receivable risk bonded with firm customers as an important factor for corporate financial policy.

Key words: capital structure, asset backed securitization, customer-supplier relationship, special purpose entity

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Recent research has drawn attention to the importance of peer firms or economically related parties on corporate financial policy (Leary and Roberts, 2014; Johnson, Kang, Masulis, and Yi, 2012). One common challenge to the studies is to design an identification strategy and overcome the endogeneity issue. Asset-backed securitization (ABS), in the form of accounts receivables securitization, provides a unique setting where we can pin down a specific channel how corporate financial policy may depend on its economically related stakeholders. In addition to its growing popularity in the financial industry, ABS has also become one significant source of funding for U.S. nonfinancial firms. For example, ABS users obtain 20% of their total debt through securitization financing (Lemmon, Liu, Mao, and Nini, 2014). One distinct feature of securitization, based on finance theories, is that it separates credit risk of the securitized assets from that of the originating firm.¹ In this study, we aim to identify whether customer risk matters for securitization financing and quantify the relative importance of customer risk compared to other firm characteristics in explaining ABS financing outcomes. More specifically, we examine the determinants of ABS leverage and ABS financing capacity to shed light on how customer firm risk may indirectly shape firm financial policies.²

Securitization by nonfinancial firms mainly involves transferring firm accounts receivables to a special purpose entity (SPE) which finances the purchase by issuing asset backed securities to investors. To the extent that accounts receivables represent trade credit that firms extend to their customers, by nature these receivables are bounded with credit risk of the customer firms. (Petersen and Rajan, 1997) Crucial to the ABS workout is to maintain a very

¹ The originating firm is also referred to as the sponsor or the originator in a securitization. By separating credit risk of the securitized asset and that of the remaining asset, securitization is claimed to achieve the benefits of reduced bankruptcy costs.

² In an asset-backed securitization, a firm sets up a special purpose entity (SPE) which issues ABS debt. Typically, ABS debt is less than the amount of receivables transferred to the SPE. The difference of the total assets placed in the SPE in excess of total ABS debt issued is called the overcollateralization or the retained interest.

high rating of A-1/P-1 for the debt issued.³ Therefore, the borrowing amount and capacity through a SPE should depend on the risks associated with the assets and the credit support from the originating firm. From ABS creditors' perspective, their lending or investment decisions reflect how they perceive their risk exposure. We find that the credit risk of customer firms bounded with accounts receivables dominates other characteristics of the originating firm in accounting for the level of SPE leverage in an ABS, which implies a separation of credit risk between the securitized assets and firm remaining assets. Higher customer risk is associated with lower SPE leverage. On the other hand, using the maximum amount of borrowing contracted with ABS creditors to proxy for ABS financing capacity, we find that the credit risk of customer firms and the amount of firm accounts receivables are two significant determinants. In particular, higher customer credit risk reduces ABS financing capacity. Overall, the evidence highlights customer risk as a key determinant for firm financial policy through ABS.

We start with the sample of firms identified as ABS users from their SEC filings during the period 1996 to 2009. We then collect detailed information on the corresponding ABS programs including the maximum borrowing amount allowed, the actual amount of ABS debt and the total amount of receivables that serve as ABS assets (i.e., the collateral). In total we can identify 460 unique ABS firms ("the full sample"). Next, we match these ABS firms with their principal customers using Compustat segments files. We construct the sample of ABS firms with their principal customers which are covered in Compustat. The matching process leads to 128 unique ABS firms and 109 unique customer firms ("the matched sample").⁴ A comparison of characteristics between ABS firms and their principal customers suggest a sharp difference in the credit risk profile between the two. On average, an ABS firm has a rating of BBB- while its

³ A common type of securities issued under an ABS program is the commercial paper which is highly rated.

⁴ On average, a firm has one to two principal customers.

principal customers have average ratings of A-. It indicates that the accounts receivables of ABS firms which are associated with the customers, have lower credit risk than the rest of firm assets, which sheds light on the claim that the securitized assets, being relatively safe, can be used for lower-cost financing.

We begin our main analysis by exploring the determinants of SPE leverage, defined as the ratio of ABS borrowed amount to the amount of receivables placed in a SPE. Higher SPE leverage means lower overcollateralization used to credit support the borrowing. In one specification, we use all observations corresponding to ABS firm and customer firm pairs. Results show that the credit risk of customer firms, proxied by industry-adjusted leverage and credit rating, is significantly negatively associated with SPE leverage. Other characteristics of the originating firm are mainly insignificant. In a second specification, we measure customer firm credit risk by taking the weighted average measure for all customers of each ABS firm. The results remain similar with both the economic and the statistic significance improved.

Next we explore the determinants of ABS financing capacity, defined as the contractual limit of borrowing normalized by firm total debt. The results, both when using all customer firms and when weighted averaging variables of these firms, show consistently that customer firm credit risk proxied by adjusted leverage and credit rating, is significantly negatively associated with ABS financing capacity. In addition, ABS financing capacity increases in the total amount of accounts receivables. These results are consistent with the availability of ABS funding depending on both the quality of the quantity of assets to be securitized. Besides, we document a significantly negative association between originating firm leverage and ABS financing capacity, which highlights also the important role of ABS firm credit risk in affecting its ABS financing capacity.

One limitation of the study is that we do not observe all customers with whom firm accounts receivables are associated. We carry out our main tests using the sample of firms which have customers that account for more than 10% of firm total sales and therefore have reported the identity of the customers. *Ceteris paribus*, those receivables that are mostly linked with principal customer firms should bear higher concentration risk and thus negatively affect ABS financing amount and capacity. Therefore, we hypothesize that ABS outcomes differ between firms which have principal customers and those that do not. We next use the full sample to examine the role of the existence of principal customers. Empirical evidence shows that an indicator variable for the existence of a principal customer is negatively associated with ABS leverage and borrowing limit, consistent with the hypothesis. Last we conduct robustness checks by using alternative measures of customer firm risk, specifically the market-to-book ratio and a dummy indicating better than investment grade credit rating. We find that both measures are positively associated with SPE leverage and borrowing limit. The results imply that lower distress risk⁵ and higher credit quality bonded with firm receivables bring more favorable financial conditions for ABS firms, which reconfirms the results in the main tests.

Overall, our study makes contributions to several strands of the literature. First, we contribute to the studies which underline the effect of peer firms or economically-related firms on corporate policies. For example, studies on customer-supplier relationships suggest that firm financial and investment policies are affected by their dependent relationship firms (Titman, and Wessels, 1988; Kale and Shahrur, 2007; Banerjee, Dasgupta, and Kim, 2008; Johnson, Kang, Masulis, and Yi, 2014; Li and Tang, 2014) and peer firms (Leary and Roberts, 2014)⁶. Our study

⁵ Fama and French (1995) argue that high market-to-book firms have lower distress risk than low market-to-book firms.

⁶ See also Cen, Dasgupta, Elkamhi and Pungaliya (2014) on the effect of long-term customer relationships on bank loan spreads and covenants.

exemplifies an economic link between customers and suppliers by exploring the outcomes of securitization financing. ABS financing, as an important part of firm overall debt structure, is shown to be affected by customer firm risk. The results provide direct and intuitive evidences that customer specific risk influences corporate financial conditions, which also echoes anecdotal evidences on ABS financing.

Second, we add to the literature of the studies which debate on whether and the extent to which the separation in credit risk between the securitized assets and the originator can be achieved in a securitization (Ayotte and Gaon, 2011; Chen, Liu, and Ryan, 2008; Gorton and Souleles, 2007; Landsman, Peasnell, and Shakespeare, 2008). The consistently significant role of customer risk in explaining ABS outcomes suggests that ABS creditors make lending or investment decisions by separating credit risk of the securitized assets from the remaining assets of the originating firm. The limited explanatory power of originating firm characteristics for SPE leverage demonstrates that ABS by nonfinancial firms is treated more as asset sales than collateral borrowing.

Third, our study sheds light on the studies about financial capacity and flexibility (Sufi, 2009; Rauh and Sufi, 2010). Interestingly, the results show that the credit risk of the originating firm matters more for ABS financing capacity than for ABS leverage. This indicates that the creditors assign financial flexibility to a firm by taking into account its overall debt structure and financial risk, while the actual lending decision depends on the specific risk exposure or credit support associated with the collateral. Again, the role of customer risk in affecting ABS capacity means that financial constraints may arise due to changes in credit profiles of customer firms.

The remainder of the paper is structured as follows. Section I describes the sample construction and the summary statistics. Section II provides the literature review and develops

the main predictions. Empirical results on the determinants of ABS leverage and financing capacity are discussed in Section III and IV. In Section V, we explore the role of concentration risk in ABS financing. We present robustness checks in Section VI and conclude in Section VII.

I. Data and Summary Statistics

A. Information on Asset Backed Securitization

A typical asset-backed-securitization (ABS) deal involves the following procedure. The ultimate borrower, also called the originator or sponsor, first sets up a bankruptcy-remote special purpose entity (SPE); the originator then transfers receivables to the SPE; next, the SPE finances these receivables by issuing security notes directly to investors. ABS for nonfinancial firms is commonly in the form of accounts receivables financing through issuing highly-rated commercial papers by SPEs. The value of transferred accounts receivables exceeds the funding raised from security issuance with the remaining portion held by the parent firm as its equity interests in the SPE. Such equity is also referred to as overcollateralization or retained interest that adds to the credit enhancement of ABS securities.

In their annual reports filed to SEC, firms disclose key information on their ABS programs: the maximum borrowing permitted under the ABS program (*'Limit'*), the outstanding borrowing through the SPE (*'SPED'*) and the value of the assets held in the SPE (*'SPEA'*).⁷ Whether *SPED* is treated as part of firm on-balance-sheet debt depends on the accounting consolidation treatment of the SPE.⁸ Therefore, the reported assets A and debt D in firm financial statements may differ from those ($FirmA$ and $FirmD$) of the stand-alone firm and those ($TotalA$

⁷ In some case, firms disclose retained interest in the SPE. We use the identity that the sum of *SPED* and retained interest equals *SPEA*.

⁸ Accounting rules Financial Accounting Standards Board issued FAS125 in 1996 and FIN46 in 2003 to provide guidance on the consolidation treatment of the securitization entity.

and *TotalD*) corresponding to the case of consolidating the firm together with its SPE. For example, Hanesbrands Inc., an American clothing company discloses in its 2007 annual reports that:

On November 27, 2007, we entered into the Receivables Facility, which provides for up to \$250 million in funding accounted for as a secured borrowing, limited to the availability of eligible receivables, and is secured by certain domestic trade receivables. The Receivables Facility will terminate on November 27, 2010. Under the terms of the Receivables Facility, the company sells, on a revolving basis, certain domestic trade receivables to HBI Receivables LLC (“Receivables LLC”), a wholly-owned bankruptcy-remote subsidiary that in turn uses the trade receivables to secure the borrowings, which are funded through conduits that issue commercial paper in the short-term market and are not affiliated with us or through committed bank purchasers if the conduits fail to fund. The assets and liabilities of Receivables LLC are fully reflected on our Consolidated Balance Sheet, and the securitization is treated as a secured borrowing for accounting purposes. ... As of December 29, 2007, we had \$250 million outstanding under the Receivables Facility. ... The total amount of receivables used as collateral for the credit facility was \$495,245 at December 29, 2007 and is reported on the Company’s Consolidated Balance Sheet in trade accounts receivables less allowances.

In this case, we collect *Limit* of 250, *SPED* of 250 and *SPEA* of 495.245 respectively for the fiscal year of 2007 for this company.

B. Sample Construction

We identify a sample of nonfinancial firms that have used ABS during the period from 1996 through 2009.⁹ In total we can identify 460 unique ABS firms out of which we can collect SPE borrowing limit for 370 firms and SPE leverage for 251 firms. We label this sample as the full sample. We then proceed to collect data on the principle customer firms associated with these ABS firms. Regulation SFAS 131 requires firms to report in their interim financial reports the identity of and the amount of sales to customers that represent more than 10% of their total sales.¹⁰ We follow Banerjee, Dasgupta and Kim (2008), Hertz, Li, Officer and Rogers (2008),

⁹ See the appendix of Lemmon, Liu, Mao and Nini (2014) for the detailed description on how the information on securitization is collected from firms’ SEC filings.

¹⁰ SFAS 131 starts to be effective from 1997 December 15th and supersedes SFAS 14.

Cohen and Frazzini (2008) and others by matching firms with their customers using Compustat segments files. We restrict to those customers that are covered in Compustat so that we can collect their accounting and financial data. Since Compustat segments files only contain customer names and many times name abbreviations, we manually check each match of fiscal year-ABS firm-customer firm observations based on corporate SEC filings and internet search. The final sample contains 128 unique ABS firms for which we can identify at least one customer firm for a corresponding ABS firm. We label this sample as the matched sample. It refers to all ABS firms that report using securitization and also report sales to customers that are covered in Compustat. Out of these, SPE borrowing limit is available for 107 firms and SPE leverage is available for 60 firms. Table AI in the appendix summarizes the sample construction process.

Information on principal customers is often available in firm annual report. For example, in the above example of Hanesbrands Inc., the firm discloses its customer segment information in its 2007 annual report:

In the year ended December 29, 2007, approximately 90% of our net sales were to customers in the United States and approximately 10% were to customers outside the United States. Domestically, almost 85% of our net sales were wholesale sales to retailers, 7% were wholesale sales to third-party embellishers and 8% were direct to consumers. We have well-established relationships with some of the largest apparel retailers in the world. Our largest customers are Wal-Mart Stores, Inc., or “Wal-Mart,” Target Corporation, or “Target” and Kohl’s Corporation, or “Kohl’s,” accounting for 27%, 14% and 6%, respectively, of our total sales in the year ended December 29, 2007.

In this case, we can collect customer names of ‘Wal-Mart stores’, ‘Target corp’ and ‘Kohl’s corp’ and the corresponding sales amounts from Compustat segments files. We then match these customer firms with their accounting and financial information using Compustat fundamental annuals files. Though the receivables sold in its securitization program by Hanesbrands Inc. may be associated with other customers, we use the disclosed principal customers to match the credit risk of receivables for two reasons. First, principal customers contribute most to a firm’s total

sales and are most likely to purchase the products on credit, and therefore the credit risk profiles of these customers should dominate in describing the risk profile of the total receivables. Second, the undisclosed other customers who purchase products on credit are likely to be in the same business segment as the principal customers whose credit risk profiles may not deviate significantly from the average of the principal customers.

Table I reports firm distribution over time. The full sample is about five times larger than the matched sample in terms of the number of ABS firms covered. In the matched sample, the table suggests that on average each ABS firm is matched with one to two customer firms.

[Table I here]

C. Summary Statistics

Table II lists summary statistics of firm characteristics. Variable definitions are described in detail in the appendix. Panel A shows the statistics for the full sample. Consistent with SPEs differ from ABS firms in terms of the overall asset risk, on average a SPE supports a higher leverage (56%) than an ABS firm (33%). An ABS program on average allocates 34% of the ABS firm's total debt as the maximum borrowing limit. We create a rating variable which takes discrete values from 1 to 20 corresponding to S&P long-term credit ratings from AAA to below CCC-. The table shows that more than 70% of ABS firms are rated and ABS firms typically have credit ratings close to investment grades. These results echo the evidence in Lemmon, Liu, Mao and Nini (2014) that ABS users are large and have around-investment-grade ratings.

Panel B compares firms that report principal customer firms ($With_CST = 1$) and those that do not ($With_CST = 0$). The role of principal customers may affect the risk of receivables perceived by ABS investors, which we analyze in a following section. It shows that firms that

report principal customer firms have, on average, lower SPE leverage, borrowing capacity, fixed assets and higher research and development expenses than the other group. The two groups are similar in other firm characteristics. Panel C presents characteristics of customer firms. In line with the regulation requirement on segment disclosures, on average, sales to a customer firm account for 16% of the ABS firm's total sales. Though the average leverage ratio of customer firms is at similar magnitude as that of ABS firms, customer firms obtain higher average credit ratings than ABS firms. The average rating of customer firms is A- and the corresponding 25th (75th) percentile is AA (BBB). To the extent that the credit risk of accounts receivables is largely associated with that of the customers who purchase products on credit, the evidence that principal customer firms bear better ratings implies that credit risk of receivables securitized under ABS programs are on average lower than that of ABS firm rest of the assets. It sheds light on the explanation why ABS firms can achieve low cost financing through securitizations of receivables. Further corroborating this is the fact that receivables correspond to most senior debt claims to customer firms. Therefore, cash flows associated with these receivables have higher priority than claims by the other creditors of customer firms.

[Table II here]

II. Literature Review and Hypotheses

In this section, we discuss related studies in the literature. In particular, we extend extant knowledge on securitization financing and economic links along the supply chain to develop our predictions on the affect of customer risk on the capital structure and financing capacity in an ABS program.

A. Asset-Backed-Securitization

Answers to whether securitizations render economic benefits and to what extent securitizations achieve separation of risk are still inclusive in the literature. Following the outbreak of the recent subprime mortgage crisis, many studies have sprung up to suggest that securitizations have distorted various incentive problems in the financial industry and thus bring negative externalities. However, for nonfinancial firms, securitizations are documented to bring the benefits of reducing financing costs through lowering firm bankruptcy costs and facilitating the access to segmented credit markets. (Lemmon, Liu, Mao, and Nini, 2014) One distinct feature of receivables securitizations by industrial firms is that the risk of the securitized asset is easily identifiable. Such property can potentially enhance the pricing efficiency of the corresponding ABS securities, compared to other types of securitization products by financial firms such as CDOs. Furthermore, since industrial firms rely on securitization as one of their financing alternatives rather than their main business, the incentives to game and profit from the system are likely to be limited. Our study aims to advance this strand of literature by identifying the source of risk of the securitized assets under an ABS program used by nonfinancial firms and examining how ABS creditors respond to such risk.

As to the second question, the answer seems to be case dependent. Gorton and Souleles (2007) support the view that securitization using SPV reduces the costs of financial distress since by design, SPVs cannot go bankrupt. In addition, they propose a theory that the originating firm provides an implicit arrangement or limited recourse which facilitates reducing bankruptcy costs and enhancing credit protection to investors. Supporting the theory, they find that the pricing of credit card ABS reflects the strength of the sponsor. Chen, Liu, and Ryan (2008) and Niu and Richardson (2006) explore the correlation between issuers' systematic equity risk and their off-

balance sheet debt.¹¹ They document evidences consistent with that securitization firms provide limited recourse. Our study employs the perspective from securitization creditors rather than sponsor firm shareholders to gauge the role of originating firm risk perceived by ABS creditors.

On the other hand, Ayotte and Gaon (2011) provide a case study to show that *ex post* efficiency during bankruptcy of the originating firm depends on the type of the securitized assets. They document that securitization of necessary assets can produce *ex post* inefficiency while that of replaceable assets such as receivables not. For nonfinancial firms, to what extent the separation of risk associated with the securitized assets from that associated with the originating firm assets holds is an empirical question.¹² When the originating firm continues to provide implicit guarantees to ABS debt, we may find ABS leverage to be correlated with the risk of the originating firm, in which case ABS debt works similar to on-balance-sheet debt. For example, Jimenez, Salas and Saurina (2006) model the determinants of collateral in bank loans and find a negative association between collateral and borrower risk. Empirically, a significant association between originating firm characteristics and SPE leverage would imply the existence of limited recourse or that of bankruptcy inefficiencies associated with the securitized assets. It may also suggest that the amount of securitized assets and the level of borrowing come from a strategic choice by the originating firm.

Critical to the securitization workout is to maintain a very high rating of A-1/P-1 for the ABS debt. Therefore, the risk embedded in securitized assets and the originating firm assets would serve as a constraint to the level of SPE borrowing. By exploring the determinants of SPE leverage, we attempt to draw some inferences. According to the feature of ABS by design to

¹¹ See also Landsman, Peasnell, and Shakespeare (2008). They find that the cross sectional equity valuations of securitization sponsors imply that market treats the assets and liabilities of SPEs as belonging to their sponsors.

¹² Higgins, Mason and Mordel (2009) find negative equity responses to initial securitizations and interpret that as securitizations are more similar to financings than asset sales.

achieve a pure separation of risk, the risk of the securitized assets would be the main factor to account for the level of SPE leverage. The credit risk of the securitized assets is proxied by that of the customer firms. We predict that characteristics of the originating firm have little or limited explanatory power for ABS leverage once the customer risk is well controlled for. In addition, ABS financing capacity also reflects ABS creditors' assessment of risk exposure and their willingness to lend. We conjecture a similar prediction as to the affect of customer firm credit risk on ABS financing capacity.

B. Buyer-Supplier-Relationships

Well documented in the literature, the economic links along the supply chain have been shown to explain firm optimal financial policy and performance. The pioneering paper by Titman (1984) demonstrates that firms choose their optimal capital structure by taking into consideration their liquidation effects on firm customers. Follow-up studies document evidences which lend support to this theory. For example, firms with unique or specialized products maintain low leverage (Titman and Wessels, 1988). Firm debt level is decreasing in the intensity of relation-specific investments proxied by R&D (Kale and Shahrur, 2007). Banerjee, Dasgupta and Kim (2008) show that firms in durable goods industries maintain low debt ratios both when they have dependent suppliers and when they depend on relatively few customers.¹³ Kale, Meneghetti and Shahrur (2013) document a negative relation between product warranty and firm debt levels. They explain the evidence as consistent with firms choosing to bond themselves by committing to lower debt levels and honor the warranty. Leary and Roberts (2014) explore the externalities of firms' financial policies due to peer effects. Using idiosyncratic stock returns as instrument variables, they find that firms leverage ratios are positively correlated with their peer

¹³ See also Li and Tang (2014) who find that CDS trading on customer firms affects corporate financial policies.

firms. From an ex-post perspective, Hertz, Li, Officer and Rodgers (2008) document that distress related to bankruptcy filing can have adverse valuation consequences on firm suppliers.¹⁴ Overall, these studies show that firm capital structure is affected by the economically-related stakeholders such as customers and suppliers. We posit that credit risk of customers bounded with firm receivables matter for ABS creditors' contractual lending decisions, which indirectly affects firm capital structure through ABS financing.

Exploring the affect of customer risk on ABS financing provides an experiment to pin down an explicit channel how the financial condition of a firm, in the context of ABS leverage and capacity, may directly rely on firm stakeholders. Some securitization users apply ABS programs in order to transfer credit risk to third parties through receivable sale.¹⁵ We hypothesize that the credit risk of receivables is positively associated with SPE leverage. More specifically, ABS creditors would invest less or demand higher level of overcollateralization when the credit risk of receivables is perceived to be high. On the other hand, an ABS program requires the assets to be eligible for securitization before the securitization is implemented. In their disclosures, companies often quote the primary determinant of the availability of funding under an ABS facility being the eligible outstanding receivables balance. For example, Dana Corporation, a U.S.-based worldwide supplier of powertrain components discusses in its 2002 annual report about its accounts receivables securitization program the following.

The amounts available under the program are subject to reduction based on adverse changes in our credit ratings or those of our customers, customer concentration levels or certain characteristics of the underlying accounts receivable.

¹⁴ The optimal pricing of lending may also depend on firm bilateral relations. For example, Wilner (2000) theoretically model relationship lending and predicts that trade-creditor firm relations can affect the pricing of lending contracts.

¹⁵ See, for example, the annual reports of Cardinal Health Inc. cik 721371.

We thus predict that customer risk and the size of eligible receivables significantly determine the maximum borrowing level under an ABS program. Specifically, lower customer credit risk and larger amounts of receivables lead to higher ABS financing capacity.

To summarize, we focus on the determinants of ABS leverage and ABS financing capacity to pin down the affect of the originating firm risk and that of the securitized assets risk on securitization. We aim to weigh the relative importance of the two and draw inferences on firm financial policy and its dependence on economically-linked stakeholders.

III. ABS Capital Structure

In this section, we examine the determinants of ABS capital structure. Typically an ABS program is structured such that the SPE achieves financing through issuing A-1/P-1 commercial papers. Therefore, essential to the securitization working is to maintain a very high credit rating. When a firm relies on ABS to get financing, it will borrow as much as possible while maintaining such a high rating. The level of SPE leverage ratio $SPED/SPEA$ would be indicative of the extent to which an ABS firm provides support to the SPE and the risk of the assets transferred to the SPE.

In Table III, we relate SPE leverage ratio to the characteristics of the corresponding ABS firm and the credit risk of ABS customer firm.¹⁶ We control for year fixed effects to absorb common factors that affect SPE leverage at the macro level. We report robust standard errors that are clustered at the firm level. In Panel A, we count each pair of ABS firm and a customer firm in a fiscal year as one observation. In column (1)-(3), we use the industry adjusted leverage ratio $(Adj_D/A)_{CST}$ to measure a customer firm's credit risk. The estimated coefficients on

¹⁶ See Murray and Goyal (2009) for capital structure determinants. Kisgen (2006) argues that discrete costs associated with credit rating level differences matter for capital structure decisions.

$(Adj_D/A)_{CST}$ are highly significant, suggesting a negative relation between SPE leverage and a customer firm's credit risk. A one standard deviation increase in a customer firm's adjusted leverage corresponds to a decrease in SPE leverage by approximately 10%, which is approximately 17% in a relative sense. ABS firm's leverage ratio turns out to be positively associated with SPE leverage, which becomes insignificant once we control for the market-to-book ratio and credit rating of the ABS firm. The evidence seems to contradict the common intuition that an ABS firm with higher credit risk would be less likely to provide credit support to its SPE. However, a highly levered ABS firm, on the other hand, can face heightened need for financing through its SPE, which leads to a higher leverage of the SPE.¹⁷ The positive coefficient suggests that the demand-for-usage effect dominates the credit-support effect. All other control variables are mostly insignificant. In column (4)-(6), a customer firm's credit risk is proxied by its credit rating $Rating_{CST}$. $Rating_{CST}$ is a variable containing discrete values from one to twenty that corresponds to S&P long term credit rating from AAA to below CCC-. Each notch in credit rating translates into a difference of one in the variable. The results show that a unit increase in $Rating_{CST}$, which corresponds to a one-notch downgrade of the customer firm, leads to a reduction in SPE leverage by about 2%. Coefficients on the other variables are quite similar to those in column (1)-(3). Overall, the evidence is consistent with the risk of the securitized assets being a first-order determinant of the securitization capital structure.

In Panel B, we aggregate the characteristics of customers for each ABS firm in each year. As a result, the sample size is fairly reduced. We calculate the weighted average of customer firm adjusted leverages $Avg. (Adj_D/A)_{CST}$ and that of customer firm credit ratings $Avg. Rating_{CST}$. We use the sales to each principal customer firm as the weight to match its relative importance

¹⁷ Lemmon, Liu, Mao and Nini (2014) show that higher levered firms are more likely to initiate a securitization program.

and its relative contribution to the accounts receivables being securitized. Panel B shows that the coefficients on $Avg. (Adj_D/A)_{CST}$ in column (1)-(3) and those on $Avg. Rating_{CST}$ in column (4)-(6) are negative and highly significant. The economic magnitudes are approximately three times as large as those in Panel A. The increased coefficient magnitude is likely due to a more accurate and representative measure of customer firm credit risk as a result of using the weighted average. The coefficients on other variables remain similar to those in Panel A.

[Table III here]

Overall, Table III shows consistent evidences that customer firm credit risk dominates ABS firm characteristics in accounting for the level of SPE leverage. In particular, higher leverage and lower credit rating of a customer firm are associated with lower SPE leverage. It implies that the credit risk of the securitized assets determines the amount an ABS firm borrows through its SPE; and the creditors in a securitization are aware of such risk by rationally account for it when making lending decisions. Surprisingly, ABS firm characteristics turn out to be less important for SPE leverage than the risk of the securitized assets. The evidence supports the view that ABS achieves a pure separation of the risk related to the securitized assets and that of the remaining firm assets.

IV. ABS Financing Capacity

Now we explore the determinants of ABS financing capacity. The maximum limit of borrowing in an ABS is a contractual agreement between an ABS firm and its creditors. It states the upper limit of the amount of debt the ABS firm can borrow through its SPE. Since the limit reflects the funding availability, it can be regarded as constituting part of the ABS firm's financial flexibility regardless of its need for funding. On the other hand, the financing limit

implies a credit protection imposed by the creditors and reflects their assessment of the risk involved in the lending. We measure the relative ABS limit using the stated limit as a fraction of the ABS firm's total debt $Limit/TotalD$. A higher ratio means a higher proportion that the firm can allocate of its overall financing in terms of ABS. Since for each ABS firm, the ABS limit can be revised over time due to reassessments by the creditors and updated securitization agreements, we conduct the tests using the whole panel dataset.

In Table IV, we relate SPE borrowing limit to ABS firm characteristics and the two credit risk measures of customer firms. In Panel A, we count each pair of ABS firm and a customer firm in a year as one observation. The first three columns show that customer firm adjusted leverage $(Adj_D/A)_{CST}$ is significantly negatively associated with SPE borrowing limit. A one standard deviation increase in $(Adj_D/A)_{CST}$ is associated with approximately 4% drop in $Limit/TotalD$, which is equivalent to a relative change by approximately 12%. The next three columns show that $Rating_{CST}$ is significantly negatively associated with $Limit/TotalD$. It implies that an increase in customer firm credit rating by one notch would lead to approximately 0.7% higher SPE borrowing limit. Therefore, the two proxies of customer firm credit risk demonstrate significant explanatory power for the ABS financing capacity. Better customer credit quality means a higher financing capacity under ABS.

In addition, all six columns show consistently that SPE borrowing limit is significantly negatively associated with ABS firm size and leverage ratio, while positively associated with ABS firm accounts receivables. The evidence indicates that: smaller ABS firms rely more on ABS financing as part of its total debt structure; lower levered ABS firms have higher ABS financing capacity, consistent with ABS creditors extend more financial flexibility to ABS firms with lower credit risk; most importantly, firms with more identifiable assets which can be

securitized are accredited with higher ABS financing capacity. The rest of the explanatory variables are mostly insignificant in explaining the dependent variable. The findings with respect to customer firm credit risk and ABS firm accounts receivables highlight that both the quality and the quantity of securitizable assets are first order factors that determine ABS financing capacity, which is in line with ‘the capacity of the securitization program depends on eligible receivables outstanding’ as firms describe in the annual reports.

In Panel B, we aggregate characteristics of customers for each ABS firm in each year. It shows that the two weighted average measures of customer firm credit risk $Avg. (Adj_D/A)_{CST}$ and $Avg. Rating_{CST}$ are both significantly negatively associated with SPE borrowing limit. The coefficients on the two variables are about four times as large as those in Panel A, demonstrating a much higher economic importance. The increase in the magnitude of the coefficients is likely due to the more accurate measure of average customer firm credit risk. Similar to the results in Panel A, ABS firm accounts receivables are significantly positively, while ABS firm size and leverage are significantly negatively associated with SPE borrowing limit. The other control variables remain largely insignificant.

Combining results in both panels, the evidence suggests that ABS financing capacity decreases in the risk of receivables proxied by customer firm credit risk and increases in the amount of receivables. Furthermore, ABS creditors extend higher contractual limit to firms with lower leverage, which implies that the lenders also concern about credit risk of the originating firms when assigning financial flexibility. However, originating firm characteristics are largely insignificant with respect to the actual borrowing against the assets transferred, as we have learned from the last section.

[Table V here]

V. Concentration Risk and ABS Financing

Next, we investigate the relation between concentration risk embedded in securitized receivables and ABS financing. As firms that have a customer contributing more than 10% of its total sales are required to report the identity and the sales to that customer (Regulation SFAS 131), those firms are likely to have accounts receivables attributed to several principal customers. To the extent that the credit risk associated with the accounts receivables are concentrated among these principal customers, the receivables bear higher risk of default than the case when they are diversified among many small customers. Such concentration risk would add to the risk born by investors in ABS and therefore may limit the amount of ABS leverage and also the ABS capacity.

Table V presents the results where we relate SPE leverage and SPE borrowing limit to a dummy variable *With_CST* indicating the existence of at least one principal customer, and other ABS firm characteristics. It shows that the coefficients on *With_CST* in all the six columns are highly significant. Consistent with receivables of higher concentration risk are less valued by ABS investors, ABS firms that report principal customers have lower SPE leverage and borrowing limit than those that do not. ABS firm leverage turns out to be positively associated with SPE leverage while negatively associated with SPE borrowing limit. It implies that higher levered ABS firms are allocated less financial flexibility by ABS lenders, but tend to borrow as much as possible against the assets securitized. In addition, consistent with the finding in the last section, ABS financing capacity is determined by the eligible amount of receivables outstanding with both the quantity and the quality of receivables being important attributes. In sum, Table V demonstrates that for receivables securitization, diversification benefits outweigh the potential costs of having relatively dispersed and small customers.

VI. Robustness Tests

We check the robustness of the results using alternative measures to proxy for credit risk embedded in firm accounts receivables. As the literature has documented that market-to-book ratio is related to relative distress (Fama and French, 1995), we use that of the customer firm *Market-to-Book_{CST}* to measure the credit risk of the securitized assets. In another specification, we use a dummy variable to group customer firms into those with higher than investment grade ratings and those below. We posit that when the receivables are from investment grade rating firms, they are more likely to secure higher SPE leverage and borrowing capacity. The variable *High_Rating_{CST}* is set to one if a customer has a rating above BBB and zero otherwise. Similar to the tests in Panel A of Table III and Table IV, we control for other firm characteristics and year fixed effects.

Panel A of Table VI shows that ABS firms associated with higher *Market-to-Book* ratio principal customers obtain on average higher SPE leverage. The coefficients are positive as predicted, though being marginally significant and sometimes insignificant. The next three columns show that the dummy variables *High_Rating_{CST}* are highly significant to account for SPE leverage, consistent with higher quality receivables can secure higher SPE leverage. In Panel B, we conduct tests for the determinants of ABS capacity. Both coefficients on *Market-to-Book_{CST}* and *High_Rating_{CST}* are significantly positive, suggesting that receivables from customers with lower distress risk and better than investment grade ratings would be deemed less risky, and lead to favorable terms by ABS investors. Thus, both panels demonstrate that the results are robust to alternative measures of customer risk.

[Table VI here]

Till now, we present results based on the tests using all accounting variables as reported in firm consolidated financial statements. In the setting of ABS, the accounting treatment of a SPE can be either on-balance-sheet or off-balance-sheet treatment. For firms which consolidate their SPEs for reporting purposes, the actual accounting ratios of the stand-alone firms differ

from those calculated using reported items in financial statements. We further check our results by repeating all tests after replacing the explanatory variables with accounting ratios of the stand-alone ABS firms or those that combine ABS firms with SPEs. Untabulated tests show that our results remain both statistically and economically similar to those discussed in previous sections.

VII. Conclusion

We apply a unique setting of asset backed securitization (ABS) to examine the affect of related firm risk on corporate financial policy. ABS by nonfinancial firms is mainly in the form of transferring accounts receivables to a SPE which finances the purchase by issuing securities to ABS investors. As receivables represent trade credit to firm customers, customer-specific credit risk is predicted to affect the actual borrowing amount and the allocated borrowing capacity through SPE. We investigate the determinants of SPE leverage and SPE borrowing limit agreed by securitization creditors. Empirical tests highlight a significant role of customer credit risk in explaining the two. Specifically, we construct one sample of nonfinancial firms who use ABS financing during the period from 1996 to 2009 and one matched sample where we can link these firms also to their principal customer firms covered in Compustat. We examine the determinants of SPE leverage and ABS borrowing limit (as a fraction of firms' total debt) using characteristics of the originating firms and risk measures of their customers. We find consistent and robust results that both ABS leverage and ABS borrowing limit decrease in the credit risk of customer firms. Though challenges to the bankruptcy remoteness and the implicit recourse assumption of securitizations imply a nontrivial role played by the originating firm, the results demonstrate that for nonfinancial firms the explanatory power of originating firm characteristics on ABS financing is quite limited, especially with respect to the level of SPE leverage. As shown in

Lemmon, Liu, Mao, and Nini (2014), credit ratings and other characteristics matter for whether a firm initiates an ABS program. Our study suggests that even though originating firm risk matters during the contractual stage of securitization involving for example ABS financial capacity, ABS creditors mainly bear the credit risk of the securitized assets after an ABS program is already in place. Besides, firms will borrow as much as possible as long as the collateral can support the typically highly rated ABS debt issuance, which is consistent with a modified version of trade off theory. Overall, the role of customer risk supports the claim that securitization achieves a separation of credit risk of the securitized assets from that of the originating firms.

The economic link between customer and supplier firms, built from the ABS channel, implies that ABS, to certain extent, facilitates credit risk transfer. However, the response from ABS creditors in the form of lower level SPE debt and lower funding capacity when facing higher credit risk suggests a feedback effect that strengthens instead of weakens the economic links along the supply chain.

Collectively, our study, based on evidences from ABS financing outcomes, underlines the importance of customer risk on corporate financial policy. Other aspects related to ABS financing such as the pricing and payment features of ABS securities could be useful to draw additional insights, which can be a fruitful area for future studies.

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Table I
Firm Distribution over Time

	Full Sample	Matched Sample	
	ABS Firms	ABS Firms	Customer Firms
1996	107	4	6
1997	127	23	30
1998	141	26	36
1999	149	24	39
2000	182	19	31
2001	232	33	51
2002	239	36	58
2003	227	44	71
2004	218	43	72
2005	189	42	62
2006	179	40	58
2007	179	41	67
2008	165	36	49
2009	141	27	38

This table presents firm distributions over time in the full sample and the match sample. Full sample refers to all ABS firms that report using securitization. Matched sample refers to all ABS firms that report using securitization and also report sales to Compustat-covered customers. Customer sales data are from Compustat segments files. The table shows the number of unique ABS firms and the number of corresponding customer firms in each year among all ABS firms that report using securitization borrowing. The sample period is from 1996 to 2009.

Table II
Summary Statistics

Panel A: ABS Firms					
Variable	Mean	Std. Dev.	p25	Median	p75
SPED_SPEA	0.56	0.30	0.38	0.62	0.81
Limit/TotalD	0.34	0.47	0.11	0.19	0.39
Ln(A)	8.00	1.41	7.06	7.93	8.96
AR/A	0.18	0.14	0.09	0.15	0.23
PPE/A	0.30	0.21	0.14	0.25	0.43
EBIT/A	0.08	0.09	0.05	0.08	0.11
XRD/A	0.01	0.03	0.00	0.00	0.02
Market-to-Book	2.64	3.75	1.14	1.77	2.91
D/A	0.33	0.18	0.20	0.31	0.42
Unrated	0.26	0.44	0.00	0.00	1.00
Rating	10.18	2.73	9.00	10.00	12.00

Panel B: ABS Firms					
Variable	With_CST=0		With_CST=1		t-test
	Mean	Median	Mean	Median	
SPED_SPEA	0.59	0.67	0.43	0.47	***
Limit/TotalD	0.36	0.20	0.29	0.18	*
Ln(A)	8.03	7.91	7.89	7.96	
AR/A	0.19	0.15	0.18	0.16	
PPE/A	0.31	0.26	0.27	0.23	***
EBIT/A	0.08	0.08	0.08	0.09	
XRD/A	0.01	0.00	0.02	0.01	***
Market-to-Book	2.65	1.72	2.60	2.03	
D/A	0.33	0.31	0.33	0.30	
Unrated	0.27	0.00	0.25	0.00	
Rating	10.16	10.00	10.30	10.00	

Panel C: Customer Firms					
Variable	Mean	Std. Dev.	p25	Median	p75
(D/A) _{CST}	0.33	0.18	0.21	0.29	0.45
(Adj_D/A) _{CST}	0.09	0.17	-0.03	0.07	0.19
Rating _{CST}	6.97	3.81	3.00	6.00	9.00
Market-to-Book _{CST}	3.62	3.66	1.31	2.71	4.65
Sale _{CST} /Sale	0.16	0.10	0.10	0.14	0.20

This table presents summary statistics of characteristics for ABS firms and their customer firms. Panel A presents characteristics of ABS firms. Panel B compares firm characteristics between those ABS firms without principal customers (With_CST=0) and those with principal customers (With_CST=1). Panel C presents characteristics of customer firms. Detailed variable definitions are in Table AII. All ratios have been winsorized at the 1st and 99th percentiles. Customer sales data are from Compustat segments files. The sample period is from 1996 to 2009.

Table III
Determinants of ABS Leverage

Panel A:	SPE Leverage (SPED/SPEA)					
	(1)	(2)	(3)	(4)	(5)	(6)
(Adj_D/A) _{CST}	-0.621*** (0.183)	-0.675*** (0.211)	-0.582*** (0.197)			
Rating _{CST}				-0.024** (0.011)	-0.022** (0.010)	-0.018* (0.009)
Sale _{CST} /Sale	-0.345* (0.193)	-0.201 (0.197)	-0.170 (0.192)	-0.329 (0.223)	-0.215 (0.232)	-0.177 (0.221)
Ln(A)	0.066* (0.035)	0.052 (0.035)	0.021 (0.050)	0.057 (0.038)	0.053 (0.039)	0.018 (0.049)
AR/A	-0.122 (0.377)	-0.301 (0.421)	-0.352 (0.430)	-0.123 (0.437)	-0.392 (0.477)	-0.478 (0.458)
PPE/A	0.277 (0.221)	0.332 (0.263)	0.323 (0.269)	0.300 (0.285)	0.312 (0.360)	0.293 (0.347)
EBIT/A	-0.756 (0.541)	-0.566 (0.646)	-0.781 (0.796)	-1.102* (0.635)	-0.979 (0.791)	-1.102 (0.874)
XRD/A	-0.699 (0.810)	-0.884 (0.879)	-0.831 (1.008)	-0.893 (0.921)	-1.292 (1.019)	-1.037 (1.088)
D/A	0.460*** (0.151)	0.410* (0.218)	0.360 (0.245)	0.346** (0.170)	0.295 (0.268)	0.226 (0.283)
Market-to-Book		0.005 (0.009)	0.006 (0.009)		0.008 (0.011)	0.008 (0.010)
Unrated			-0.039 (0.177)			-0.111 (0.201)
A and Above			0.143 (0.177)			0.116 (0.202)
BBB			0.046 (0.139)			-0.004 (0.158)
BB			-0.015 (0.106)			-0.084 (0.131)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering(Firm)	Yes	Yes	Yes	Yes	Yes	Yes
#obs	261	213	213	243	195	195
R-sqr	0.24	0.33	0.35	0.20	0.28	0.32

Panel B:	SPE Leverage (SPED/SPEA)					
	(1)	(2)	(3)	(4)	(5)	(6)
Avg. (Adj_D/A) _{CST}	-1.778*** (0.533)	-1.787*** (0.542)	-1.774*** (0.495)			
Avg. Rating _{CST}				-0.067*** (0.023)	-0.064*** (0.022)	-0.079*** (0.025)
Avg. Sale _{CST} /Sale	-0.250 (0.286)	-0.107 (0.312)	-0.057 (0.315)	0.460 (0.374)	0.485 (0.371)	0.701* (0.395)
Ln(A)	0.082*** (0.030)	0.059* (0.035)	0.063 (0.054)	0.077** (0.032)	0.066* (0.038)	0.085* (0.047)
AR/A	-0.179 (0.376)	-0.178 (0.446)	-0.110 (0.413)	-0.239 (0.392)	-0.216 (0.471)	-0.097 (0.411)
PPE/A	0.086 (0.182)	0.153 (0.241)	0.229 (0.260)	0.079 (0.217)	0.136 (0.291)	0.261 (0.305)
EBIT/A	-0.914* (0.523)	-0.879 (0.618)	-0.946 (0.740)	-1.179** (0.541)	-1.073 (0.657)	-0.981 (0.781)
XRD/A	-0.947 (0.784)	-1.057 (0.880)	-1.024 (0.942)	-1.363 (0.823)	-1.396 (0.938)	-1.250 (0.992)
D/A	0.396** (0.158)	0.494* (0.253)	0.486* (0.249)	0.320* (0.163)	0.490* (0.284)	0.409 (0.257)
Market-to-Book		-0.003 (0.006)	-0.001 (0.005)		-0.002 (0.007)	0.001 (0.006)
Unrated			-0.017 (0.186)			-0.179 (0.217)
A and Above			0.002 (0.170)			-0.190 (0.201)
BBB			-0.087 (0.158)			-0.274 (0.182)
BB			-0.095 (0.124)			-0.267* (0.151)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering(Firm)	Yes	Yes	Yes	Yes	Yes	Yes
#obs	172	144	144	161	133	133
R-sqr	0.27	0.30	0.32	0.27	0.28	0.32

This table presents estimated coefficients from regressions that relate SPE leverage at year t to firm characteristics at year t-1. The sample includes observations of all firms that report using securitization and also report sales to Compustat-covered customers. $(Adj_D/A)_{CST}$ refers to the industry-adjusted leverage of the customer. $Rating_{CST}$ refers to the S&P long term rating of the customer. Panel A uses all ABS firm-customer-year observations. Panel B uses ABS firm-year observations where the characteristics

of customers are averaged for each ABS firm-year using $\text{Sale}_{\text{CST}}/\text{Sale}$ as the weight. Detailed variable definitions are in Table AII. Standard errors are robust, clustered at the firm-level and reported in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

Table IV
Determinants of ABS Financing Capacity

Panel A:	SPE Borrowing Limit (Limit/TotalD)					
	(1)	(2)	(3)	(4)	(5)	(6)
(Adj_D/A) _{CST}	-0.234*** (0.085)	-0.269*** (0.087)	-0.258*** (0.081)			
Rating _{CST}				-0.006* (0.004)	-0.009** (0.004)	-0.007* (0.004)
Sale _{CST} /Sale	0.014 (0.115)	0.009 (0.115)	-0.011 (0.113)	0.016 (0.123)	0.006 (0.120)	-0.007 (0.121)
Ln(A)	-0.090*** (0.015)	-0.086*** (0.016)	-0.086*** (0.017)	-0.088*** (0.016)	-0.084*** (0.016)	-0.085*** (0.017)
AR/A	1.053*** (0.238)	1.124*** (0.254)	1.086*** (0.247)	1.026*** (0.246)	1.110*** (0.258)	1.068*** (0.253)
PPE/A	-0.091 (0.102)	-0.111 (0.116)	-0.120 (0.108)	-0.073 (0.108)	-0.090 (0.122)	-0.102 (0.117)
EBIT/A	-0.054 (0.301)	-0.007 (0.303)	-0.136 (0.317)	-0.046 (0.347)	-0.083 (0.350)	-0.150 (0.357)
XRD/A	0.666 (0.575)	0.576 (0.547)	0.437 (0.546)	0.707 (0.644)	0.594 (0.587)	0.469 (0.603)
D/A	-0.408*** (0.083)	-0.480*** (0.136)	-0.441*** (0.133)	-0.439*** (0.088)	-0.535*** (0.135)	-0.509*** (0.135)
Market-to-Book		0.005 (0.004)	0.006 (0.004)		0.008* (0.005)	0.009* (0.005)
Unrated			0.108* (0.056)			0.067 (0.058)
A and Above			0.006 (0.067)			-0.020 (0.075)
BBB			0.111** (0.050)			0.078 (0.052)
BB			0.074* (0.043)			0.047 (0.044)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering(Firm)	Yes	Yes	Yes	Yes	Yes	Yes
#obs	549	492	492	524	468	468
R-sqr	0.51	0.54	0.55	0.49	0.52	0.53

Panel B:	SPE Borrowing Limit (Limit/TotalD)					
	(1)	(2)	(3)	(4)	(5)	(6)
Avg. (Adj_D/A) _{CST}	-0.946*** (0.263)	-1.013*** (0.264)	-0.994*** (0.254)			
Avg. Rating _{CST}				-0.039*** (0.012)	-0.045*** (0.012)	-0.043*** (0.013)
Avg. Sale _{CST} /Sale	-0.019 (0.125)	-0.044 (0.140)	-0.070 (0.139)	0.450** (0.196)	0.502** (0.202)	0.453** (0.199)
Ln(A)	-0.077*** (0.014)	-0.076*** (0.016)	-0.074*** (0.018)	-0.069*** (0.014)	-0.066*** (0.015)	-0.063*** (0.017)
AR/A	1.316*** (0.192)	1.337*** (0.213)	1.294*** (0.214)	1.311*** (0.189)	1.345*** (0.211)	1.306*** (0.214)
PPE/A	0.024 (0.086)	-0.003 (0.102)	-0.018 (0.099)	0.048 (0.088)	0.024 (0.103)	0.012 (0.104)
EBIT/A	-0.086 (0.320)	-0.089 (0.330)	-0.162 (0.355)	-0.119 (0.331)	-0.154 (0.338)	-0.162 (0.358)
XRD/A	0.822 (0.648)	0.706 (0.643)	0.626 (0.648)	0.996 (0.664)	0.876 (0.645)	0.827 (0.649)
D/A	-0.419*** (0.084)	-0.507*** (0.142)	-0.482*** (0.140)	-0.406*** (0.078)	-0.508*** (0.134)	-0.505*** (0.136)
Market-to-Book		0.004 (0.003)	0.005 (0.003)		0.006 (0.004)	0.006 (0.004)
Unrated			0.085 (0.060)			0.019 (0.066)
A and Above			-0.007 (0.074)			-0.064 (0.078)
BBB			0.092 (0.059)			0.029 (0.065)
BB			0.073 (0.045)			0.015 (0.054)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering(Firm)	Yes	Yes	Yes	Yes	Yes	Yes
#obs	346	314	314	335	303	303
R-sqr	0.54	0.56	0.57	0.53	0.55	0.55

This table presents estimated coefficients from regressions that relate SPE borrowing limit at year t to firm characteristics at year t-1. The sample includes observations of all firms that report using securitization and also report sales to Compustat-covered customers. $(Adj_D/A)_{CST}$ refers to the industry-adjusted leverage of the customer. $Rating_{CST}$ refers to the S&P long term rating of the customer. Panel A uses all ABS firm-customer-year observations. Panel B uses ABS firm-year observations where the

characteristics of customers are averaged for each ABS firm-year using $\text{Sale}_{\text{CST}}/\text{Sale}$ as the weight. Detailed variable definitions are in Table AII. Standard errors are robust, clustered at the firm-level and reported in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

Table V
Firms with/without Principal Customers

	SPE Leverage (SPED/SPEA)			SPE Borrowing Limit (Limit/TotalD)		
	(1)	(2)	(3)	(4)	(5)	(6)
With_CST	-0.146*** (0.042)	-0.153*** (0.046)	-0.159*** (0.046)	-0.088*** (0.030)	-0.104*** (0.033)	-0.097*** (0.033)
Ln(A)	0.007 (0.013)	0.005 (0.014)	0.003 (0.016)	-0.118*** (0.021)	-0.112*** (0.021)	-0.079*** (0.018)
AR/A	-0.125 (0.155)	-0.167 (0.163)	-0.282* (0.151)	1.232*** (0.322)	1.226*** (0.360)	1.216*** (0.361)
PPE/A	-0.035 (0.080)	-0.062 (0.090)	-0.041 (0.084)	0.045 (0.074)	-0.010 (0.075)	0.005 (0.071)
EBIT/A	0.119 (0.257)	0.061 (0.327)	-0.188 (0.292)	-0.025 (0.234)	-0.168 (0.311)	0.080 (0.307)
XRD/A	1.083 (0.673)	1.025 (0.739)	0.705 (0.704)	-0.554 (0.701)	-0.754 (0.769)	-0.694 (0.738)
D/A	0.258*** (0.083)	0.323*** (0.113)	0.278** (0.112)	-0.695*** (0.123)	-0.833*** (0.168)	-0.859*** (0.174)
Market-to-Book		0.003 (0.004)	0.002 (0.003)		-0.001 (0.002)	-0.001 (0.002)
Unrated			0.046 (0.078)			0.055 (0.058)
A and Above			0.142* (0.083)			-0.137 (0.085)
BBB			-0.064 (0.072)			-0.139*** (0.047)
BB			0.000 (0.063)			-0.078* (0.042)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering(Firm)	Yes	Yes	Yes	Yes	Yes	Yes
#obs	1,112	995	995	1,798	1,594	1,594
R-sqr	0.14	0.14	0.19	0.34	0.34	0.36

This table presents estimated coefficients from regressions that relate SPE leverage (Column (1)-(3)) and SPE borrowing limit (Column (4)-(6)) at year t to firm characteristics at year t-1. The sample includes observations of all firms that report using securitization. With_CST is a dummy variable which equals one if an ABS firm reports at least one principal customer in the year. Detailed variable definitions are in Table AII. Standard errors are robust, clustered at the firm-level and reported in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

Table VI
Robustness Tests

Panel A:	SPE Leverage (SPED/SPEA)					
	(1)	(2)	(3)	(4)	(5)	(6)
Market-to-Book _{CST}	0.022* (0.012)	0.021 (0.013)	0.013 (0.014)			
High_Rating _{CST}				0.243*** (0.085)	0.266*** (0.088)	0.235*** (0.081)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering(Firm)	Yes	Yes	Yes	Yes	Yes	Yes
#obs	238	197	197	243	195	195
R-sqr	0.17	0.25	0.28	0.24	0.34	0.36

Panel B:	SPE Borrowing Limit (Limit/TotalD)					
	(1)	(2)	(3)	(4)	(5)	(6)
Market-to-Book _{CST}	0.013** (0.006)	0.013* (0.007)	0.013* (0.007)			
High_Rating _{CST}				0.073** (0.032)	0.093*** (0.033)	0.083** (0.032)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Clustering(Firm)	Yes	Yes	Yes	Yes	Yes	Yes
#obs	514	460	460	524	468	468
R-sqr	0.53	0.55	0.56	0.50	0.53	0.54

This table presents estimates from regressions similar to those in Table III (Panel A) and Table IV (Panel A) using alternative measures of customer risk. Market-to-Book_{CST} is customer firm's market-to-book ratio. High_Rating_{CST} is a dummy variable which equals one if a customer has a credit rating above BBB and zero otherwise. Standard errors are reported in parentheses. *, **, and *** denote an estimate that is statistically significantly different from zero at the 10%, 5%, and 1% levels, respectively.

Table AI
Sample Construction

This table describes the sample construction process for the full sample and the matched sample. The sample period is from 1996 to 2009. Full sample refers to all firms during the sample period that report using securitization. Matched sample refers to all firms that report using securitization and also report sales to Compustat-covered customers.

	Full Sample	Matched Sample	
	ABS Firms	ABS Firms	Customer Firms
ABS firms identified from firm 10ks	526	526	
After matching customer names in Compustat segment files		187	
With SPE borrowing amount and sufficient Compustat accounting data	460	128	109
With data on SPE Borrowing Limit (Limit/TotalD)	370	107	100
With data on SPE Leverage (SPED/SPEA)	251	60	48

Table AII
Variable List and Description

Variable	Definition	Compustat Item
SPED	Debt borrowed through SPEs	
SPEA	Assets in SPEs	
Limit	Upper limit of the amount of debt SPEs can borrow	
A	Total assets	at
TotalA	Total assets of the firm, including debt in SPEs	
FirmA	Assets of the firm, excluding debt in SPEs	
D	Total debt	dltt+dlc
TotalD	Total debt of the firm, including debt in SPEs	
FirmD	Debt of the firm, excluding debt in SPEs	
AR	Accounts receivables	rect
TotalAR	Accounts receivables, including the difference between AR and retained interest in SPEs	
FirmAR	Accounts receivables, excluding the difference between AR and retained interest in SPEs	
PPE	Net property, plant and equipment	ppent
EBIT	Operating income after depreciation	oiadp
R&D	Research and development expense (set to zero if missing)	xrd
Market-to-Book	Market value of equity divided by book value of equity	prcc_f*csho/(ceq+txdb)
Rating	Discrete variable taking values from 1 to 20 based on the S&P long-term domestic issuer credit rating: AAA, AA+, AA, AA-, A+, A, A-, BBB+, BBB, BBB-, BB+, BB, BB-, B+, B, B-, CCC+, CCC, CCC-, and anything below CCC-, respectively	splticrm
Unrated	An indicator variable taking the value of one if a firm doesn't have a S&P long-term, rating, and zero otherwise	
A and Above	An indicator variable taking the value of one if a firm has a S&P long-term rating of A, AA, or AAA, and zero otherwise	
BBB	An indicator variable taking the value of one if a firm has a S&P long-term rating of BBB, and zero otherwise	
BB	An indicator variable taking the value of one if a firm has a S&P long-term rating of BB, and zero otherwise	
Sale	Total sales	sale
Sale _{CST}	Sales to the customer	salecs