Credit Market Segmentation, Access to Credit, and Corporate Risk-taking: Evidence from Asset-backed Securitization*

by

Zhehao Jia
Business School, University of Edinburgh, UK

Yukun Shi
Adam Smith Business School, University of Glasgow, UK

Yeqin Zeng
Durham University Business School, Durham University, UK

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Abstract

This study investigates the relationship between the use of asset-backed securitization (ABS) and corporate risk-taking. Utilizing hand-collected ABS data from 10-K filings, we provide robust evidence that firms with ABS borrowings exhibit more risk-taking, especially firms with larger ABS borrowing capacity and lower ABS credit consumption. Furthermore, our analysis suggests that the positive relationship between ABS borrowings and risk-taking is more pronounced for firms with less financial constraints, more liquidity constraints, smaller firm size, more board gender diversity, and female CEOs. Our findings support the theoretical view that low costs of capital, high asset liquidity, and good investment opportunities are associated with greater corporate risk-taking. Overall, our findings have important implications for practitioners and policymakers by demonstrating the potential benefits of ABS usage for non-financial firms.

Keywords: Asset-backed securitization; Corporate risk-taking; ABS borrowings; Access to credit markets

JEL classification: G32; G31; G34

1. Introduction

Asset-backed securitization (ABS) is a financial innovation that has gained popularity as an important source of corporate financing since its creation in the 1970s. In the US, the enactment of anti-recharacterization laws in the late 1990s and early 2000s further boost the popularity of securitization among non-financial firms. Although there is a brief period of decline in securitization during the 2007–2008 financial crisis, the use of ABS financing through Special Purpose Vehicles (SPVs) remains widespread. [1] For non-financial firms, the funds obtained through ABS account for 27% of their total debts.[2] Firms that have not utilized ABS may elect to employ them in the future, as anti-recharacterization laws are expected to boost access to funding for all firms (Favara et al., 2021). Despite ABS's substantial role in the financing of non-financial firms and its potential increase in the future, research on its impact on corporate outcomes is limited. While much has been learned about the use of securitization among creditors, little is known about the mechanisms through which ABS affects corporate borrowers. Previous studies by Feng et al. (2009) and Lemmon et al. (2014) offered some insights, yet more research is needed to fully understand the implications of ABS for non-financial firms.

Corporate risk-taking plays a crucial role in a firm's performance, growth, and competitiveness. Previous literature has examined many factors that influence corporate risk-taking, such as corporate governance (John et al., 2008), creditor rights (Acharya et al., 2011), large shareholder diversification (Faccio et al., 2011), corporate taxes (Djankov et al., 2010), executive compensation (Bolton et al., 2015), and short-term debts (Della Seta et al., 2020). While significant attention has been paid to these factors, the research on how securitization affects non-financial firms' risk-taking incentives remains underexplored. Our paper aims to address this oversight and provides evidence on the economic consequences of ABS financing and the extent to which ABS borrowings affect non-financial firms' risk-taking behavior. Understanding the relationship between ABS financing and corporate risk-taking can help firms' stakeholders make informed decisions about firms' financing strategies and help policymakers to evaluate the risks associated with securitization.

[1] The total value of ABS issued peaked at 795.9 billion dollars in 2007 but dramatically dropped down to 125.9 billion dollars by the end of 2010. However, the ABS market is recovering in terms of issuance amount after the collapse. The total issuance reaches to the pre-crisis level of 550.3 billion by the end of 2017. Please refer to the SIFMA website: https://www.sifma.org/resources/archive/research/.

[2] See Lemmon et al. (2014).

Previous studies have investigated the implications of ABS on financial firms' risk-taking activities and yielded mixed findings (e.g., Cebenoyan and Strahan, 2004; Casu et al., 2011; Purnanandam, 2011). Casu et al. (2011) argue that one of the main concerns for financial firms is credit risk. The credit risk exposure that arises from securitized assets, such as mortgages, changes banks' risk appetite and makes them more cautious in taking risks. However, the mechanism through which securitization affects non-financial firms can be different from financial firms due to the differences in institutional backgrounds between financial and non-financial firms. Non-financial firms may be less concerned about risk exposure since the risk of securitized assets is well separated from the ABS originators.

By separating the risk of underlying assets from the firm's risk, ABS can provide better protection to creditors than traditional financing methods, which improves firm's access to external financing, particularly for those with barriers to accessing capital markets due to information asymmetries or other market frictions (e.g., Ayotte and Gaon, 2010; Lemmon et al., 2010). Consequently, the broader access to credit through ABS may ease managers' precautionary concerns, leading to an increase in risky investments and further firm growth (Faccio et al., 2011; Axelson, et al., 2013; Ersahin, 2020; Favara et al., 2021). Stronger creditor rights protection, such as legal enforcement, can further enhance this effect. Previous studies have shown that expanding the menu of collateralizable assets and increasing the ability to recover collateral in bankruptcy can lower the required rate of return for creditors (e.g., Haselmann et al., 2010; Cerqueiro et al., 2016; Gopalan et al., 2016; Calomiris et al., 2017). Favara et al. (2021) find that anti-recharacterization laws introduced in some U.S. states can increase the expected value of collateral in bankruptcy, thus further easing firms' access to credit. Therefore, a firm's risk-taking incentives may increase after securitization due to increased creditor protection, especially after the passage of anti-recharacterization laws in the late 1990s and early 2000s.

Borrowing through ABS helps to reduce firms' costs of financing. This reduction is facilitated by creditor protection measures such as over-collateralization, which are employed to elevate the credit rating of the issued ABS. Additionally, the involvement of SPVs in ABS transactions separates the risk of underlying assets from firms, themselves, further lowering borrowing costs. This benefit is greater for firms with non-investment grade credit ratings, as they can leverage ABS as an alternative financing method, while avoiding relatively higher costs from public debt financing. This strategy enables them to access capital more affordably.

From the perspective of information asymmetry and moral hazard, securitization through ABS can also influence corporate risk-taking. On the one hand, ABS is designed to separate the risk of underlying assets from the risk of the firm itself. According to Liu et al. (2018), securitized account receivables are well separated from originators, which creates fewer adverse selection problems than other types of securitizations, such as mortgage-backed securities (MBS). If underlying assets are priced correctly in ABS, firms can access broader credit markets by mitigating the information asymmetry between ABS issuers and investors. On the other hand, account receivables are typically considered as low-risk assets. If ABS issuers indeed sell subpar assets to the market or fail to adequately monitor the underlying assets after securitization, their existing ability to access external financing remains unaffected.[3] By originating ABS, firms can demonstrate their ability to exhaust credit segmentations. Consequently, ABS firms should have more incentives to take risks if they securitize low-quality assets and reduce monitoring efforts after securitization. Overall, this interplay between financing costs reduction and information asymmetry suggests that ABS utilization may elevate the risk-taking propensity of originators.

Using hand-collected data from 10-K filings in EDGAR, we examine the relationship between ABS borrowings and corporate risk-taking. Our empirical analysis encompasses a sample period spanning from 1997 to 2017, comprising 509 ABS users that have engaged in securitization at least once, resulting in a total of 3,104 firm–year observations. To establish a comparison group, we employ a propensity scoring matching (PSM) method to match ABS users with non-users. Then, we conduct a difference-in-differences (DID) test and show that, compared to non-users, ABS users exhibit an increase in risk-taking after the origination of ABS. We further investigate the effect of ABS borrowing size on risk-taking using a pooled ordinary least squares (OLS) regression. Our results indicate that ABS borrowing size is positively associated with corporate risk-taking. To help dispel potential endogeneity concerns, we adopt three identification tests: the Heckman two-stage procedure, a high-dimensional fixed effects model, and a time trend analysis. These tests consistently support the positive relationship between ABS borrowings and corporate risk-taking.

Many ABS users' 10-K filings provide information about the upper bound of their borrowing limit and the assets held by SPVs, which enable us to study how ABS contract characteristics affect corporate risk-taking. We find that a larger borrowing capacity is

[3] Banks may not monitor borrowing firms if there is a market for credit protection.

positively associated with risk-taking, as borrowing capacity reflects accessibility to external financing. We also find that unused credit from ABS is positively related to risk-taking. Another characteristic of ABS is the leverage in SPVs, which tends to be higher when the underlying assets are riskier. Over-collateralization reflects the quality of ABS originators' account receivables and their relationship with customers. While over-collateralization is found to have a negative association with risk-taking, this relationship does not achieve statistical significance. Furthermore, we utilize the introduction of anti-recharacterization laws in the US as an exogenous increase in creditor rights protection. We employ a staggered DID test to show that the use of ABS leads to more risk-taking after the laws take effect. Our findings support the view that ABS borrowings increase risk-taking by improving access to credit markets.

Additionally, we explore the cross-sectional variables of the relationship between ABS borrowings and corporate risk-taking. We find that the mechanism through which ABS borrowings increase risk-taking is to release the liquidity constraint of the originating firm, rather than alleviate financial constraints, underscoring an improvement in credit accessibility. Notably, the positive relationship between ABS borrowings and risk-taking is more pronounced among firms with a smaller size, more female directors on corporate boards, and female CEOs. To ensure our finding is robust to alternative measures of corporate risk-taking, we employ total risk based on the standard deviations of firm stock returns and idiosyncratic risk measured by the standard deviations of the residual terms in the capital asset pricing model (CAPM) and the Fama–French three-factor model. We find that the positive relationship between ABS borrowings and risk-taking persists across these market-based risk-taking measures. Last, we investigate the impact of ABS borrowings on capital allocation efficiency. We show that ABS borrowings induce more risk-taking when firms have good investment opportunities, supporting the notion that ABS borrowings provide additional credit to firms, which can be invested in riskier and value-added projects.

Our paper contributes to several strands of the literature. Firstly, our study adds to the extensive body of research on the determinants of corporate risk-taking. Previous studies have documented various macro-level determinants of corporate risk-taking, such as investor protection (Leuz et al., 2003), property rights protection (John et al., 2008), creditor rights protection (Acharya et al., 2011), and large shareholder diversification (Faccio et al., 2011). Other studies have examined the impact of capital market development on corporate risk-taking, including corporate taxes (Djankov et al., 2010), state and foreign ownership (Boubakri et al.,

2013), and policy uncertainty (Akey and Lewellen, 2017). At the firm-level, previous studies have shown that factors such as culture (Li et al., 2013), executive compensation incentives (Bolton et al., 2015), female CEOs (Faccio et al., 2016) CEO personal risk preference (Cain and McKeon, 2016), corporate board diversity (Bernile et al., 2018), and short-term debts (Della Seta et al., 2020) are also related to corporate risk-taking. Our study builds upon this strand of literature by documenting a causal association between access to credit markets through ABS and corporate risk-taking. This finding adds a novel determinant to the existing literature on corporate risk behaviors, emphasizing the pivotal role of ABS financing in influencing firm-level risk engagement. Through this addition, we illuminate a previously underexplored facet of how financial instruments and market access can shape corporate strategies and risk profiles.

Secondly, our paper adds to the growing literature on the impact of financial innovation, particularly securitization, on corporate activities. While past studies have examined the effects of securitization among both financial and non-financial firms, we build on the latter, which has received less attention due to practical data availability issues (Lemmon et al. 2014). Despite the existing research on securitization, debates continue regarding its effects on the real economy. Some studies have highlighted its negative consequences, including asymmetric information and adverse selection (e.g., Downing et al., 2008; An et al., 2011; Bord et al., 2015; Beltran et al., 2017), increased bank risks (e.g., Agarwal et al., 2012; Trapp and Weiß, 2016; Chen et al., 2017), and changes in bank lending behaviors (Cebenoyan and Strahan, 2004; Mian and Sufi, 2009; Purnanandam, 2011; Nadauld and Sherlund, 2013; Chen et al., 2017; Kara et al., 2018). However, other researchers have found positive effects of securitization, such as an increase in bank lending ability and profitability (Altunbas et al., 2009; Loutskina, 2011). Our study enriches this ongoing discussion by demonstrating that non-financial firms can benefit from using ABS to mitigate their financial constraints. We show that access to credit markets through ABS is causally linked to increased corporate risk-taking. This finding complements prior research indicating that firms use funding from ABS to pay down existing debts, which in turn eases liquidity constraints and enables firms to pursue more valuable investments (Lemmon et al., 2014; Riachi and Schwienbacher, 2013). By providing empirical evidence on the impact of financial innovation on corporate behaviors and the real economy, our paper offers new insights into the positive effects of securitization on non-financial firms. Overall, our study adds to the ongoing debate about the role of securitization in the real economy.

Thirdly, previous studies on financial firms' use of ABS do not draw a conclusion on how securitization affects firms' risk-taking activities. Some studies show that financial firms take new risks after securitization, such as issuing new loans with higher-than-average default risk, while other studies find that securitization reduces banks' credit risk-taking. Our study adds to this debate by showing a positive effect of ABS on non-financial firms' risk-taking. Additionally, our unique dataset, consisting of hand-collected details from ABS contracts, enables us to investigate the effects of specific ABS contract features on risk-taking - a novel approach not previously addressed in existing research.

Our paper is also related to the literature focused on the impact of creditor rights on credit markets and firm behaviors. We adopt anti-recharacterization laws as an exogenous increase in creditor rights in ABS financing and find evidence supporting the literature that *ex-ante* strengthened creditor rights reduce firms' precautionary behaviors and prompt firms to conduct more value-enhancing activities. We add to this literature by showing that market segmentation and bankruptcy costs are important frictions that affect corporate risk-taking incentives.

The remainder of our paper is organized as follows. Section 2 presents our hypotheses. Section 3 outlines our data sources, sample, and variable definitions. Section 4 presents the main empirical results of our study on the relationship between ABS borrowings and corporate risk-taking. Section 5 provides additional analyses to address endogeneity issues. Section 6 examines the relationship between ABS contract characteristics and risk-taking, while Section 7 discusses our supplementary analyses. Lastly, Section 8 concludes the paper.

2. Hypotheses

An ABS contract is a type of financial arrangement between a non-financial firm and an SPV. In this arrangement, the firm pledges their assets, such as future account receivables, to receive the assets' current value minus any costs (Feng et al., 2009; Li et al., 2016). An ABS transaction involves establishing the bankruptcy remoteness of the SPV, which means that the risk of securitized assets is separated from the risk of the originator. The SPV lends cash to the ABS originator as debts and holds the future cash flows of the originator's securitized assets as repayments. To ensure that SPVs are bankruptcy remote, ABS contracts are usually over-collateralized. This means that the value of assets transferred to SPVs is always higher than the debt securities issued by the SPVs. Additionally, the maximum funds available to ABS originators vary between different contracts, which limits creditors' risk exposure to securitized

assets. The borrowing capacity of ABS is often determined by the size of account receivables and their associated risks. Therefore, the size of borrowings through ABS, assets transferred to SPVs, and the limit of borrowings from SPVs are important factors that determine the characteristics of an ABS contract.[4]

The key research question regarding ABS in this study is whether they encourage corporate risk-taking behaviors among non-financial firms. A primary benefit of ABS is that it provides firms with broader access to credit through SPVs that are "bankruptcy remote", which increases firms' liquidity and borrowing capacity but reduces the cost of capital. ABS financing effectively reduces firms' reliance on traditional funding sources like banks and public debt investors, who tend to impose provisions and covenants to restrict borrowing firms' investment policies. The provisions and covenants also limit borrowing firms' ability to pursue risky but value-adding investments. By accessing credit markets through ABS, firms gain more flexibility in their investment choices, which can encourage corporate risk-taking. Furthermore, better access to credit markets can reduce the need for firms to take precautionary measures such as holding more cash, reducing payouts, and investing in less risky assets (Favara et al., 2021).

ABS can offer firms with greater liquidity by converting future cash flows into present funds. For many non-financial firms, ABS is a form of a line of credit, which they can borrow from up to the borrowing limit. This liquidity measure offers firms an option to take advantage of future investment opportunities, especially during good times, compared to non-operational cash (Lins et al., 2010). Given that the underlying assets of ABS are usually account receivables, effectively ABS transactions are short-term borrowings, which may incentivize firms' risk-taking behaviors (Chen and Duchin, 2019; Della Seta et al., 2020). When non-financial firms utilize ABS, they also send a signal to investors that the firms can obtain external financing through credit market segmentation. This signal enhances firms' reputation and access to capital markets, potentially increasing their risk-taking behaviors (Lemmon et al., 2014). Financing through SPVs protects creditor rights, but the extent to which ABS affects corporate activities depends on the strength of creditor protection laws (Ersahin, 2020; Favara et al., 2021; Rainville et al., 2021). The passage of anti-recharacterization laws in some US states has strengthened lenders' ability to repossess collateral in bankruptcy, potentially increasing the

[4] An example of securitization and ABS contracts that reveal the details of ABS is provided in the sample selection section and Appendix 1.2.

impact of ABS on corporate risk-taking.

Accordingly, we formulate our primary hypothesis as the following:

Hypothesis 1a: The use of ABS financing promotes corporate risk-taking incentives.

Hypothesis 1b: The size of borrowings through ABS is positively associated with corporate risk-taking.

As we hand-collect the details of ABS contracts' information from firms' 10-K filings, we can explore how the characteristics of ABS contracts influence corporate risk-taking. Specifically, we hypothesize the following:

Hypothesis 2a: ABS borrowing capacity is positively related to corporate risk-taking.

Hypothesis 2b: Unused ABS credit is positively related to corporate risk-taking.

Hypothesis 2c: Over-collateralization in ABS is negatively related to corporate risk-taking.

Based on the potential benefits of ABS financing described above, firms can obtain funds at a relatively lower cost and increase liquidity by securitizing their account receivables. The borrowing limit serves as a proxy for firms' access to ABS financing and their ability to secure external financing. Therefore, firms with greater access to ABS financing are more likely to pursue riskier investments. In *Hypothesis 2a*, we posit that there is a positive correlation between accessibility to ABS financing and corporate risk-taking. When firms exhaust their contractual borrowing capacity, they are no longer able to securitize more assets beyond the upper limit and thus cannot enjoy the benefits of securitization. This may lead to a postponement of risk-taking activities. In *Hypothesis 2b*, we conjecture that unused ABS borrowing capacity increases a firm's incentives to take risks.

Lastly, over-collateralization in ABS contracts refers to the borrowings from ABS over the assets that are transferred to SPVs. Over-collateralization is a method of protecting creditors and is positively associated with the risk of securitized assets. While over-collateralization potentially reduces information asymmetry problems, it is costly to originators due to the increased risk exposure (Chen et al., 2008; Chen et al., 2024). Based on our reducing financing cost channel, over-collateralization reduces the relative advantage of ABS financing compared to other sources of funds in terms of financing cost. Therefore, the risk-taking incentives of

firms originating ABS are likely to decrease as ABS costs increase. In *Hypothesis 3d*, we predict that over-collateralization is negatively related to corporate risk-taking.

3. Data and methodology

3.1. Sample selection

We follow previous literature on non-financial firms' use of ABS (e.g., Lemmon et al., 2014) and start by collecting U.S. public firms' 10-K filings in the EDGAR database, which is provided by the Securities and Exchange Commission (SEC) and discloses ABS information. To obtain a sample of ABS users from the period of 1997 to 2017,[5] we search each EDGAR-covered firm's 10-K filings for a list of keywords indicating the use of securitization.

EDGAR started adopting electronic filings in 1993, but many firms' electronic filings are missing in the database for the first few years. To ensure that all firms' 10-K filings are available in EDGAR, we choose 1997 as the beginning of our sample period. We exclude firms in the financial industry (SIC code 6000–6949) from our sample, as they tend to issue ABS to finance mortgages and hold financial derivatives for trading purposes. Additionally, we exclude firms in the highly regulated utility industry (SIC code 4900–4949) because they have regulation constraints to engage in risk-taking activities.

Following Riachi and Schwienbacher (2013) and Lemmon et al. (2014), we use a list of keywords including 'securitization', 'securitized', 'receivable sale', 'sales of receivable', 'receivable sold', and 'receivable financing'. We also search for variations of the keywords to ensure that our search process does not miss any ABS users due to case sensitivity, acronyms, plural, or difference between American and British English. If a firm's 10-K filing contains at least one of the keywords mentioned above, we manually read the whole filing, including its balance sheet, to confirm whether the firm uses ABS in the fiscal year. Our manual check helps to exclude false-positive cases where firms only mention the concept of securitization by do not actually use ABS.

In addition to identifying ABS users in our sample period, we collect the data on the maximum borrowing permitted (*Lmt*), outstanding borrowing through SPV (*ABS*), the value of

[5] Our dependent variables measure corporate risk-taking activities within two years after the originations of ABS, concluding with the sample ending in 2019. We exclude data beyond 2020 to account for the potential influence of risk-taking activities due to the outbreak of Covid-19 in early 2020.

collateralized receivables (*SPVA*), and the issuance/termination date, if this information is available in the users' 10-K filings. In addition, we record whether a firm consolidates its SPV's debt onto its balance sheet or keeps the debt off-balance sheet. For firms that do not consolidate their SPV's debt, we follow the procedure outlined by Lemmon et al. (2014) and adjust the reported balance sheet quantities to construct values as if the debt is consolidated. This procedure helps to create comparable debt values across our sample firms.[6]

We identify 509 firms with 10-K filings in EDGAR as ABS users that have securitized their assets at least once during our sample period. The ABS users represent 3,104 firm–year observations. Table 1 reports the year and industry distributions of ABS firms. Panel A shows that 133 firms use securitization to finance their assets in 1997. The number of ABS users steadily increases from 1997 to 2002 and then significantly decreases after the 2008 financial crisis.[7] The year distribution of the ABS users in our sample is comparable to the distribution reported by Lemmon et al. (2014) whose sample ends in 2009. Panel B shows that most of the ABS users are in the Manufacturing and Wholesale & Retail Trade industries, accounting for 73% of the ABS sample. Appendix I provides detailed information on our ABS data collection.

[Insert Table 1 here]

The other data used in our empirical analyses come from the following sources: accounting data from Compustat, stock price data from the Center for Research in Security Price (CRSP), corporate rating information from Capital IQ, corporate board gender data from BoardEx and Execucomp, executive compensation data from Execucomp, institutional ownership data from the Thomson Financial 13F database, and corporate culture data from Li et al. (2021).[8] After we merge the ABS data with the other data, our effective sample consists of 11,392 unique firms and 90,838 firm–year observations, which have available data on ABS borrowings, accounting information, and stock returns for our main empirical analyses.

3.2. Key variables

Following previous literature (e.g., John et al., 2008; Hilary and Hui, 2009; Acharya et al., 2011; Faccio et al., 2011; Boubakri et al., 2013), our primary proxy variable for corporate risk-

[6] For off-balance-sheet securitizations, we add back the debt values that retained in SPVs to calculate total assets (*TA*) and total debt. This ensures that *TA* is comparable across firms, regardless of their accounting choices.
[7] When we hand-collected ABS data, some firms' 10-K filings were not available in EDGAR. Therefore, we only identified 32 ABS users in 2017.
[8] We thank Kai Li for sharing the corporate culture data with us.

taking, *Risk1*, is constructed as the volatility of a firm's quarterly return on assets (*ROA*) over two years, which captures the risk of the firm's operational performance. *ROA* is defined as earnings before interest and taxes divided by total assets. To evaluate whether our findings are sensitive to the proxy for corporate risk-taking, we adopt an alternative measure, *Risk2*, which is defined as the range of a firm's quarterly *ROA* over two years.

We construct several variables to measure a firm's use of ABS from various dimensions. The main independent variable of interest is an indicator variable, *ABS_Dummy*, which equals one if a firm uses ABS in a given fiscal year based on its 10-K filing, and zero otherwise. An alternative measure of a firm's use of ABS is *ABS_Size*, defined as the natural logarithm (log) of the ratio of ABS borrowings to total assets (*ln(ABS/TA)*), where total assets also include debt retained in SPVs as defined above in footnote 5.[9] *ABS_Size* measures the amount of borrowing through securitization. We employ the natural log transformation to reduce the skewness of *ABS/TA*. We expect that both *ABS_Dummy* and *ABS_Size* are positively related to corporate risk-taking.

In terms of ABS contracts' characteristics, we define three ratios *(Lmt-ABS)/TA*, *Lmt/TA*, and *ABS/SPVA*. *(Lmt-ABS)/TA* is the ratio of the upper limit of securitization borrowings (*Lmt*) minus the actual amount of securitization borrowings scaled by total assets, which captures a firm's unused ABS capacity. Due to the restricted access to securitization funding, such as limited accounts receivable which can be collateralized in SPV, a firm's ABS borrowing capacity generally has an upper limit. As the gap between a firm's actual ABS borrowings and the upper limit of ABS borrowings increases, the firm is likely to be less conservative and selective when making investment decisions. Thus, we conjecture that *(Lmt-ABS)/TA* is positively associated with corporate risk-taking.

Lmt/TA is the ratio of maximum securitization borrowings allowed to the total assets of ABS originators, which includes debt in SPV if the borrowing through ABS is an off-balance-sheet item. *Lmt/TA* measures a firm's maximum ABS financing capacity. A higher value of *Lmt/TA* indicates that a firm has a better access to ABS financing (Liu, et al., 2017). Previous studies suggest that financial constraints prevent firms from making investments in growth opportunities. A higher limitation in ABS financing provides managers with an alternative financing channel, which helps to mitigate their risk aversion. We expect that *Lmt/TA* has a

[9] i.e., TA = Compustat total assets (at) + SPV debt

positive impact on corporate risk-taking.

ABS/SPVA is the ratio of outstanding ABS borrowings to the value of collateralized receivables through SPVs (also expressed as *SPVA,* assets of SPV). Liu et al. (2017) suggest that SPVs tend to maintain lower credit risk when the risk of securitized assets is higher and limits the borrowings. The smaller the *ABS/SPVA* is, the more over-collateralization the ABS borrowing is. Over-collateralization suggests that SPVs regard underlying assets as risky, even though they do not increase the cost of financing. From a firm's perspective, it tends to avoid losing its assets collateralized in SPVs when it defaults. Since the risk of securitized assets and the risk of securitization originators are separated, *ABS/SPVA* can be taken as a measure of the risk of securitization originators' customers. Specifically, a lower value of ABS/SPVA indicates a higher risk associated with a firm's customer, and vice versa. When it is risky for a firm to collect payments from its customers, the firm tends to exhibit reluctance towards investing in in risky projects. This reluctance stems from the firm's desire to mitigate total risks by avoiding potentially uncollectible receivables from its customers. Therefore, we expect that *ABS/SPVA* is positively related to corporate risk-taking.

We include a set of firm-level control variables in our empirical models. Following Faccio et al. (2011) and Boubakri et al. (2013), we control for *Size*, the natural log of total assets; *Leverage*, the ratio of total debt to total assets; *ROA*, the ratio of earnings before interest and tax (EBIT) to total assets; *SaleGrowth*, the annual growth rate of total sales; *Age*, the natural log of one plus the number of years since a firm's data is available in Compustat. These variables are predeterminants of corporate risk-taking, which are calculated at the end of a fiscal year. We also control for variables that may affect the probability of a firm using ABS borrowings following previous literature (e.g., Riachi and Schwienbacher, 2013; Lemmon et al., 2014), including *Receivables*, accounts receivable scaled by total assets; *Inventory*, inventories scaled by total assets; *MTB*, the market-to-book ratio; *E*arnings, earnings scaled by total assets; *R&D*, R&D expenses (zero if missing) scaled by total assets; *Rating*, an indicator variable that equals one if a firm has an S&P long-term domestic issuer credit rating and zero otherwise. To control for a firm's historical risk-taking tendency, we include the earnings range, *Earnings_Range*, which is the range of quarterly earnings over the two years before a fiscal year.[10] We present the detailed definition of all variables in Appendix II.

[10] We also test another proxy of the pre-ABS risk-taking level of a firm, *Earnings_Volatility* defined as the standard deviation

3.3. Summary statistics

We winsorize all continuous regressors at the 1st and 99th percentile to mitigate the effect of potential outliers. Table 2 reports the summary statistics of the variables used in our main empirical analyses. Panel A summarizes the ABS-related variables for firm–years in which firms use ABS. The mean of *ABS/TA* is 0.068, indicating that ABS borrowings account for 6.8% of an average ABS user's total asset. Although the number of non-financial firms using securitization is limited, the size of ABS borrowings is economically significant for those who use ABS financing. The 25th percentile, median, and 75th percentile of *ABS/TA* are 0.018, 0.040, and 0.075, respectively, suggesting that the distribution of *ABS/TA* is highly skewed. To reduce the skewness of *ABS/TA*, we use the natural log transformation of *ABS/TA* (i.e., *ABS_Size*) in our regression analyses. The mean of *(Lmt-ABS)/TA* is 0.031, suggesting that 45.6% (=0.031/0.068) of an average ABS user's credit obtained from securitization remains unused. The mean of *Lmt/TA* is 0.069, indicating that for 2,287 ABS users with available data on the upper limit of ABS borrowings, the average upper limit accounts for 6.9% of total assets. The 75th percentile of *ABS/SPVA* is 0.812, which is less than one, suggesting that, for 998 ABS users with available data on SPVA, more than 75% of them are over-collateralized. These statistics indicate that ABS users' underlying assets transferred to SPV are not risk-free, otherwise ABS/SPVA should be close to one.

Panel B of Table 2 reports the summary statistics of firm-level characteristics. We report the number of observations, mean, median, and standard deviations of each variable for ABS users and non-users. The sample of non-ABS users includes the 88,364 firm–year observations with no missing values for the variables in our main analyses between 1997 and 2017. The last two columns present the statistical significance of mean difference and median difference between ABS users and non-users. We observe that the mean and median of *Risk1* and *Risk2* for ABS users are less than those of ABS non-users, and the differences in the mean and median between ABS users and non-users are statistically significant at the 1% level. In terms of the average firm-level characteristics, we find that ABS users generally have more leverage, larger firm size, higher return on assets, higher sales growth, older firm age, more accounts receivables, more inventory, lower market-to-book ratio, more earnings, lower R&D expenses, a higher likelihood of receiving a credit rating, and a narrower earnings range, consistent with

of quarterly earnings before interest and taxes scaled by the book value of assets during the two years period before the observation firm–year. Our results remain robust if we replace *Earnings_Range* with *Earnings_Volatility* in our empirical analyses.

the findings in the literature (e.g., Lemmon et al., 2014). The median-differences in the firm-level characteristics between ABS users and non-ABS users are similar to the results of the mean-difference tests, except for sales growth, market-to-book ratio, and R&D expenses.

Earnings_Range serves as an indicator of a firm's risk-taking incentives prior to its use of ABS. The differences in the mean and median of *Earnings_Range* between ABS users and non-users are statistically significant, suggesting that ABS users typically experience lower return volatility and possess fewer risk-taking incentives than non-users. When comparing ABS users to non-users, ABS users may have conservative corporate policies prior to the adoption of ABS. This conservatism may potentially restrict their operating performance and decelerate their prospects for future growth.

Overall, the summary statistics reported in Table 2 indicate that there exists a severe self-selection bias if we only study ABS users. Therefore, we must address the self-selection issue before examining the relation between the use of ABS and corporate risk-taking.

[Insert Table 2 here]

4. Main empirical results

4.1. Matching ABS users with non-users

A firm's decision to originate ABS is not random. Lemmon et al. (2014) find that firms with larger size, older age, or more account receivables are more likely to securitize their assets. Since the differences in firms' characteristics (e.g., firm size and age) are correlated with both the use of ABS and corporate risk-taking, directly comparing ABS users to non-users is subject to potential selection biases. Therefore, we adopt a Propensity Scoring Matching (PSM) approach to match ABS users with non-users to mitigate the self-selection biases.

We begin our PSM analysis by estimating the likelihood of firms using ABS. Specifically, we estimate the following probit model:

$$ABS\_Dummy_{it} = \beta_0 + \beta_1 Leverage_{it} + \beta_2 Size_{it} + \beta_3 Receivables_{it} + \beta_4 Inventory_{it} + \beta_5 MTB_{it} + \beta_6 Earnings_{it} + \beta_7 R\&D_{it} + \beta_8 Rating_{it} + \beta_9 Earnings\_Range_{it} + \rho_j + \theta_t + \varepsilon_{it} \quad (1)$$

where the dependent variable is an indicator variable, *ABS_Dummy*, that is equal to one if a

firm originates ABS in a firm–year and zero otherwise. The control variables in Equation (1) are the determinants of using ABS, mostly selected from the previous studies on firms' use of ABS (e.g., Riachi and Schwienbacher, 2013; Lemmon et al., 2014). We also control for the industry fixed effects (ρ_j) and year fixed effects (θ_t) to control for unobserved heterogeneity, the factors that are not directly observable but can affect the use of ABS. We estimate Equation (1) in a panel sample of 90,838 firm–year observations, which includes both ABS users and non-users with non-missing accounting information.

We present the estimated results of Equation (1) in Panel A of Table 3. The estimated coefficients on firm characteristics indicate the differences between ABS users and non-users that determine a firm's decision to originate ABS. Our findings are generally consistent with the literature. Firms with higher leverage, larger size, more account receivables, and more inventory, as well as firms with a credit rating, are more likely to use ABS. In contrast, firms with larger earnings, more R&D expenses, and a wider range of earnings are less likely to use ABS. Particularly, the estimated coefficient on *Earnings_Range* is negative and statistically significant at the 5% level, suggesting that risky firms are less likely to finance through ABS. Based on the probit model, we estimate the propensity score of each firm–year observation which will be used for matching ABS users with non-users in the next step.

[Insert Table 3 here]

Next, we match ABS users with non-users using the propensity scores estimated for each firm–year observation. We employ a one-to-one nearest neighbor matching methodology without replacement and choose a calliper width of 0.01.[11] 98.87% percent of ABS user firm–year observations are matched with non-user firm–year observations, which can be explained by the fact that the non-user sample size (83,692) is much larger than the user sample size (2,565).[12] In total, our matched sample includes 2,536 ABS user and 2,536 non-user firm–year observations. Panel B of Table 3 presents the means of the characteristics of both ABS users and their matched non-users. We find that, before securitization, ABS users and their matched non-users are similar in *Leverage*, *Inventory*, *MTB*, *Earnings*, *R&D*, *Rating*, and *Earnings_Range*. However, there still exist statistically significant differences in *Size* and *Receivables* between ABS users and their matched non-users.[13] The statistically insignificant

[11] We follow Rosenbaum and Rubin (1983) to implement our PSM analysis.
[12] We lose a few observations due to the missing information of some covariates, e.g., *MB*.
[13] Both firm size and account receivables are positively associated with the likelihood of firms using ABS. Although there still

difference in *Earnings_Range* between ABS users and their matched non-users suggests that the two groups of firms have the same risk level prior to the use of ABS. The two groups of firms also have a similar likelihood of securitizing assets, given that the difference in the propensity scores (0.009) between the two groups is statistically insignificant.

4.2. ABS borrowings and corporate risk-taking

To investigate whether the use of ABS affects corporate risk-taking, we start our analysis by examining the changes in risk-taking around the origination of ABS borrowings in our PSM matched sample. The treatment group includes ABS users, while the control group includes matched non-users. We define the year of ABS borrowing as year 0. Then we calculate the standard deviations of quarterly ROA (proxy for risk-taking) within a one-year window. Specifically, we estimate the value of our risk-taking measure (*Risk1*) for both the treatment and control group within one year before ABS borrowings (event window (-1,0)), the year of ABS borrowings (event window (0,1)), the first year after ABS borrowings (event window (1,2)), and the second year after ABS borrowings (event window (2, 3)).

[Insert Figure 1 here]

Figure 1 shows the average of the standard deviations of quarterly ROA for both ABS users and their matched non-users over the four event windows. On average, ABS users exhibit lower levels of risk-taking than matched non-users. During the two years [-2, -1] prior to the origination of ABS, ABS users have a 42% ((0.0178-0.0103)/0.0178) lower standard deviation of ROA than their matched non-users. During the event window [0, 1], the risk-taking of matched non-users slightly increases, whereas ABS users even show a slight decrease. However, the difference in the standard deviation of ROA between the treatment and control groups decreases after the year of securitization. During the event window [1, 2], ABS users have a 32% ((0.0180-0.0123)/0.0180) lower standard deviation of ROA than their matched non-users, while during the event window [2, 3], ABS users only have a 13% ((0.0178-0.0155)/0.0178) lower standard deviation of ROA than their matched non-users. Figure 1 also indicates that there is no significant change in the standard deviation of ROA for matched non-users after event year 0, whereas the standard deviation of ABS users' ROA increase

exist statistically significant differences in these two variables between ABS users and non-users after the matching, both firm size and account receivables are negatively related to risk-taking, which is opposite to the effect of ABS borrowings on risk-taking. Therefore, even though the matched non-users have higher means of these two characteristics than ABS users, the differences in these two variables does not lead to a positive relation between ABS borrowings and risk-taking.

dramatically after event year 0. Although ABS users have relatively lower incentives to take risks before the origination of ABS borrowings, they gradually approach non-users' risk-taking level after securitizing their assets. These findings support our hypothesis that ABS borrowings are positively related to corporate risk-taking.

To investigate the effect of ABS borrowings on corporate risk-taking, we apply a difference-in-differences (DID) approach in our matched sample. Following previous research, the DID regression specification is written as follows:[14]

$$Risk_{it} = \beta_0 + \beta_1 ABS\_Dummy_{it} + \gamma Y_{it} + \rho_i + \theta_t + \varepsilon_{it} \qquad (2)$$

where $Risk_{it}$ represents the risk-taking measures (i.e., the risk-taking level within two years after assets securitized) for firm *i* in year *t*. The independent variable of interest is ABS_Dummy_{it}, which equals one if firm *i* has ABS borrowings in year *t* and zero otherwise. β_1 captures the effect of ABS borrowings on corporate risk-taking. Y_{it} represents a group of variables to control for firm characteristics, including *Size*, *Leverage*, *ROA*, *SaleGrowth*, and *Age*. The detailed definitions of our variables are explained in Appendix II. We include the firm fixed effects (ρ_i) to control for unobservable time-invariant firm characteristics. When the firm fixed effects are included, Equation (2) is equivalent to a DID regression specification, since the first differences are captured by firm fixed effects and the second differences are captured by the variable *ABS_Dummy*. Year fixed effects (θ_t) are included in Equation (2) to account for the aggregate time-variate impacts on corporate risk-taking. We cluster the standard errors of the estimated coefficients at the firm level.

[Insert Table 4 here]

We report the DID regression results in Table 4, where *Risk1* and *Risk2* are dependent variables in columns (1) and (2), respectively. The estimated coefficients on our independent variable of interest, *ABS_Dummy*, are positive and statistically significant at the 1% level in columns (1) and (2), indicating that corporate risk-taking increases following the use of ABS. The impact of ABS borrowings on corporate risk-taking is also economically significant, with

[14] Please refer to Ljungqvist, et al. (2017) and Favara et al. (2021) for detailed discussions on the DID specification. A typical DID specification estimates the following ordinary least squares (OLS) regression: $Risk_{it} = \beta_0 + \beta_1 Treat \times Post + \beta_2 Treat + \beta_3 Post + \gamma Y_{it} + \rho_i + \theta_t + \varepsilon_{it}$, where *Treat* equals one if a firm originates ABS at any time during our sample period and zero otherwise and *Post* equals one after a firm originates ABS and zero otherwise. When year (θ_t) and firm (ρ_i) fixed effects are included, the inclusion of Treat and *Post* is not necessary. The DID model is then reduced to Equation (2) because *ABS_Dummy* is equivalent to *Treat*×*Post*.

the origination of ABS borrowings increasing *Risk1* by 9.2% and *Risk2* by 9.5% at its mean, respectively.[15] The adjusted R-squares are 0.665 and 0.649 in columns (1) and (2), respectively, suggesting that the model explains more than 50% of the variations of risk-taking. These findings support *Hypothesis 1a* which posits that ABS borrowings are positively related to corporate risk-taking.

Le et al. (2015) find that asset securitization increases banks' risk-taking before the 2008 financial crisis but has no impact on banks' risk-taking after 2009. In our sample of non-financial firms, we do not find evidence that the impact of ABS borrowings on corporate risk-taking varies before and after the 2008 financial crisis.

4.3. The role of ABS borrowing size

Hypothesis 1b posits that the amount of ABS borrowings is positively related to corporate risk-taking. To test this hypothesis, we now focus on a sample of ABS users. Specifically, we exclude non-users from our sample and only keep firm–years in which firms have ABS borrowings i.e., *ABS_Dummy* equals to one. Using our hand-collected data on the amount of ABS borrowings, we test the following pooled OLS model:

$$Risk_{it} = \beta_0 + \beta_1 ABS\_Size_{it} + \gamma Y_{it} + \rho_j + \theta_t + \varepsilon_{it} \qquad (3)$$

where $Risk_{it}$ is the dependent variable, representing one of the two risk-taking measures *Risk1* and *Risk2* for firm *i* in year *t*. The main explanatory variable is ABS_Size_{it}, which is the natural log-transformed borrowings through ABS or firm *i* in year *t*. We include the industry fixed effects (ρ_j) to control for cross-industry unobservable time-invariant effects and year fixed effects (θ_t) to account for aggregate time-variate effects.[16] The control variables (Y_{it}) are the same as those in Equation (2). Table 5 presents the regression results of Equation (3). In column (1), the estimated coefficient on *ABS_Size* is positive and statistically significant at the 1% level (t-statistics of 2.64). In column (2), the estimated coefficient on *ABS_Size* is positive and significantly significant at the 5% level (t-statistics of 2.48). In terms of economic significance, a one-standard-deviation increase in ABS borrowings is associated with a 9.6% increase in *Risk1* and a 26.8% increase in *Risk2*. The positive effect of ABS borrowings on corporate risk-

[15] For readability, we multiply risk-taking measures by 100. That is, 9.2% = (0.092*1)/(0.010*100) and 9.5% = (0.256*1)/(0.027*100).
[16] We control for the industry fixed effects instead of firm fixed effects so that we can filter the effect of ABS borrowings on risk-taking from other factors.

taking is positive statistically and economically significant. These findings not only confirm *Hypothesis 1b* but also provide supportive evidence for *Hypothesis 1a*.

[Insert Table 5 here]

5. Endogeneity threats

So far, our empirical evidence in Section 4 implies that the use of ABS is positively associated with corporate risk-taking. However, our analyses are vulnerable to potential endogeneity between ABS borrowings and corporate risk-taking for the following reasons. First, our findings are still likely to be subject to selection bias issues. For instance, the amount of ABS borrowings largely depends on a firm's account receivables, as discussed in Section 4. Second, although we have controlled for the predetermined variables of risk-taking documented in previous studies, there might exist unobservable heterogeneity when omitted unobservable variables are correlated with both ABS borrowing decisions and corporate risk-taking. Lastly, there is a possibility that firms securitize more because their risk-taking incentives increase before the origination of ABS. Therefore, our findings could spuriously reflect endogeneity biases due to the reverse causality and simultaneity issues. In this section, we employ three identification tests to mitigate potential endogeneity threats.

5.1. Selection bias

To address the issue of selection bias, we adopt the classical Heckman (1979) two-stage procedure to correct for the self-selection bias that might exist in the test of *Hypothesis 1b* estimated by Equation (3) using OLS regression.[17] The first-stage regression of the procedure involves modeling the choice of a firm to securitize its assets in a given year. We specify a Probit model for the first-stage regression, which is the same as Equation (1). The economic determinants of securitization decisions are selected as independent variables in the first-stage regressions, which rely on the previous studies of ABS (Riachi and Schwienbacher, 2013; Lemmon et al. 2014). Li and Prabhala (2007) recommend including variables that appear in the first-stage regression but not in the second-stage regression. These variables should have an influence on the origination of ABS decisions but not on corporate risk-taking. In our specification, the variables *Receivables*, *Inventory*, *MTB*, *Earnings*, *R&D*, *Rating*, and *Earnings_Range* satisfy this requirement of exclusive restriction, as they do not affect the

[17] The Heckman (1979) two-stage regression is not applicable in the test of *Hypothesis 1a*. However, we have adopted a PSM analysis together with a DID regression to tackle the selection bias.

outcome of interest (i.e., corporate risk-taking) unless they operate through the variables that we explicitly control for. Based on the results of the first-stage regression, we construct an *Inverse Mill's Ratio* (*IMR*) to be used as an additional regressor to the second-stage regression. In the second-stage regression, *IMR* is added to Equation (3). Specifically,

$$Risk_{it} = \beta_0 + \beta_1 ABSSize_{it} + \beta_2 IMR + \gamma Y_{it} + \delta_j + \theta_t + \varepsilon_{it} \quad (4)$$

Table 6 presents the results of our Heckman two-stage regressions. Panel A displays the results of the first-stage regression, where the coefficients of the determinants of ABS borrowings are all statistically significant. Panel B reports the results of the second-stage regression. The estimated coefficients on the endogeneity control, *IMR*, are positive and statistically significant at the 1% level in columns (1) and (2), suggesting the presence of self-selection. This indicates that certain observed and unobserved characteristics that increase the likelihood of using ABS further increase corporate risk-taking. After controlling for *IMR*, the estimated coefficients on *ABS_Size* in the second-stage regression remain positive and statistically significant at the 1% level. The positive relation between ABS borrowings and corporate risk-taking persists after correcting for selection bias using the Heckman two-stage procedure.

[Insert Table 6 here]

5.2. Omitted variables

It is possible that our empirical analyses may omit some observable and unobservable risk-taking determinants. For instance, prior research has shown that corporate risk-taking is linked to firms' activities such as financing policy. As a source of financing, the choice of originating ABS may also be affected by firms' *ex-ante* risk-taking level. So far, we follow extensive prior research in selecting controls for the determinants of corporate risk-taking. In this section, we add a few extra controls to mitigate any estimation bias due to omitted variables.

First, recent studies suggest that a firm's risk-taking activities are related to its CEO's risk-taking incentives (e.g., Coles et al. 2006, Bakke et al. 2016). To isolate the direct impact of ABS borrowings on corporate risk-taking, we explicitly control for CEO risk-taking incentives, as proxied by *Vega*. *Vega* is defined as the sensitivity of a CEO's wealth to stock return volatility (Cole et al. 2006).

Second, a firm's risk-taking activities may be driven by agency issues and are affected by its corporate governance (John et al. 2008). In the event that a firm's decision to use ABS is influenced by its corporate governance, the relationship between ABS borrowings and corporate risk-taking can be explained by the cross-sectional variations of firms' corporate governance. To confront this potential alternative explanation, we control for institutional blockholder ownership (*Blockownerhsip*). Edmans (2014) reviews the theoretical and empirical studies on the "voice" and "exit" channels through which blockholders engage in corporate governance.

Third, a firm's decision of using ABS and its risk-taking activities may be jointly affected by its corporate culture. For example, a firm with an entrepreneurial culture may be more likely to use ABS to finance its risky investment projects. Following Graham et al. (2019) and Li et al. (2021), we use a summary measure to capture corporate culture. We define *Str_Cul* as an indicator variable that equals one if the sum of a firm's five cultural values estimated by Li et al. (2021) is in the top quartile of all Compustat firms in a given year and zero otherwise.

In Panel A of Table 7, we report the results of Equation (1) and Equation (2) after adding the three controls discussed above. Although these specifications admit some sample attrition, we find that the estimated coefficients on *ABS_Dummy* and *ABS_Size* remain positive and statistically significant. Overall, these results suggest that the positive relation between ABS borrowings and corporate risk-taking remains robust after controlling for managerial risk-taking incentives, corporate governance, and corporate culture.

Next, we follow Gormely and Matsa (2014)'s advice to use alternative fixed effects to control for unobserved omitted variables. Gormley and Matsa (2014) argue that important sources of unobserved heterogeneity are usually across groups of observations in a panel sample. Specifically, we control for high dimensional fixed effects in Equation (1) and Equation (2) by adding firm fixed effects and industry×year fixed effects, which alleviate the endogeneity concern due to unobserved heterogeneity across firms and time-varying heterogeneity across industries. Panel B of Table 7 shows that our main results remain robust after controlling for the high dimensional fixed effects.

[Insert Table 7 here]

5.3. Reverse causality

The expected cause-and-effect relationship between ABS borrowings and risk-taking can be reversed. Our results suggest that ABS borrowings induce corporate risk-taking. However, firms with more risk-taking incentives may choose to securitize their assets in order to finance risky investments, since ABS borrowings are less costly compared to other common financing sources. Furthermore, regardless of whether a firm treats ABS as on-balance or off-balance financing, one of the main uses of the funds borrowed through ABS is to pay off the firm's existing debts (Lemmon et al., 2014). A firm that has already engaged in risk-taking activities using debt financing has more incentives to securitize its assets to improve firm liquidity and reduce external financing costs. Although we examine the impact of ABS borrowings on future risk-taking, which mechanically mitigates the reverse causality and simultaneity concerns, we conduct additional tests to further address the causality issue and provide reliable identification.

Following Bertrand and Mullainathan (2003), we replace *ABS_Dummy* in Equation (2) with five indicator variables, namely, $Year^{-2}$, $Year^{-1}$, $Year^{0}$, $Year^{-1}$, and $Year^{2}$. $Year^{n}$ equals one if a firm–year is the *n*-th year relative to the origination of ABS borrowings and zero otherwise. The results are tabulated in columns (1) and (2) of Panel C of Table 7. We find that the estimated coefficients on $Year^{-2}$ are negative and statistically significant, suggesting that ABS users generally take less risk than their matched non-users two years before the origination of ABS. The estimated coefficients on $Year^{-1}$ are statistically insignificant, indicating that ABS users and non-users have a similar level of risk-taking one year before the origination of ABS borrowings. The estimated coefficients on $Year^{0}$ are positive and statistically significant, implying that the origination of ABS increases corporate risk-taking in the year of ABS origination. The estimated coefficients on $Year^{1}$ remain positive and statistically significant, while the estimated coefficients on $Year^{2}$ are positive but statistically insignificant. When we compare the estimated coefficients on $Year^{0}$, $Year^{1}$, and $Year^{2}$, we observe that both the statistical significance level and the values of these coefficients decrease over time after the origination of ABS borrowings. Our findings suggest that the positive effect of ABS borrowings on corporate risk-taking gradually gets weaker as time lapses, and the positive effect lasts for two years after the origination of ABS.

In columns (3) and (4) of Panel C of Table 7, we replace the dependent variable with one-year forward risk-taking measure $Risk1_{t+1}$ in Equation (2). Similarly, in columns (5) and (6), we replace the dependent variable with $Risk1_{t+1}$ in Equation (3). The estimated coefficients on *ABS_Dummy* and *ABS_Size* remain positive and statistically significant, suggesting that ABS

borrowings are positively related to corporate risk-taking in the future.

Overall, our findings in Table 7 mitigate the omitted variable concern and provide evidence of a causal relation between ABS borrowings and corporate risk-taking.

6. Access to credit and corporate risk-taking

The details of an ABS borrowing contract contain valuable information about the firm. Our hand-collected data enable us to further examine how the characteristics of ABS contracts affect corporate risk-taking. In this section, we replace *ABS_Size* in Equation (3) with variables that capture ABS contracts' characteristics. To ensure that our findings are not driven by selection bias, we apply both the OLS and the Heckman Two-stage procedure in our tests.

6.1. Borrowing capacity

First, we use the upper limit which a firm can borrow through ABS over total assets (*Lmt/TA*) to measure its ABS borrowing capacity. In a standard ABS contract, the ABS originator (borrowing firm) and ABS underwriter (creditor) sign an agreement, in which the maximum borrowing limit through ABS is set contractually. Setting an upper limit can protect ABS underwriters by restricting their risk exposure to a single ABS originator. Since an upper limit is usually chosen based on borrowing firms' financial strengths, it reflects the borrowing firms' external financing capability and contributes to the firms' overall borrowing capacity (Liu et al. 2018). We expect that *Lmt/TA* should have a positive impact on corporate risk-taking since the more a firm can borrow through ABS, the more it can finance its risky investments. Panel A of Table 8 shows that the estimated coefficients on *Lmt/TA* are all positive and statistically significant, consistent with our expectation. A one-standard-deviation increase in *Lmt/TA* is associated with an increase of 13.6% in *Risk1* and an increase of 12.7% in *Risk2* based on the OLS estimated results.

[Insert Table 8 here]

The results in Panel A of Table 8 suggest that a firm's ability to access external financing is one of the main determinants of corporate risk-taking. A firm can invest more in risky projects if the cost of accessing external financing is lower. When a firm's borrowing capacity increases through the origination of ABS, it is possible that the firm is optimistic about its future growth and is overconfident about the outcomes of its risky investments, leading to more risk-

taking activities. In contrast, ABS users are generally restricted from financing through conventional channels, and as a result, their firm policies tend to be conservative when they can only securitize a limited amount of their assets. The limited borrowing capacity through ABS reflects that a firm has either uncertain future cash flows, such as account receivables, or fewer future growth opportunities, regardless of whether the securitized assets can be well separated from the originator (Liu et al. 2018).

6.2. Unused ABS credit

Secondly, we use the ratio of unused ABS borrowing capacity over total assets (*(Lmt-ABS)/TA*) to measure the extent to which a firm has utilized its ABS credit. We examine whether a firm's risk-taking activities are linked to the unutilized ABS borrowing capacity. Panel B Table 8 shows that the estimated coefficients on *(Lmt-ABS)/TA* are positive and statistically significant at the 1% level. Based on the OLS estimated results in columns (1) and (3), a one-standard-deviation increase in *(Lmt-ABS)/TA* is associated with a 12.4% increase in *Risk1* and a 15.9% increase in *Risk2*. In simple terms, firms are more likely to experience external financing difficulties if they have used up all their credit from ABS as the other external financing options are likewise constrained. Therefore, unutilized borrowing capacity through ABS programs is beneficial to firms and enables them to invest in risky projects, while utilizing all the credit from ABS programs makes firms reluctant to take risks. The findings in Panel B lend support to our conjecture that ABS borrowings affect corporate risk-taking incentives by expanding firms' access to credit.

6.3. Over-collateralization

Thirdly, we use the ratio of borrowings through ABS over assets transferred to SPV, also known as leverage in SPV, to measure over-collateralization in securitization. Collateralization is often used in bank loans as a method by creditors to manage their loan risks. A similar approach is adopted in ABS programs. In an ABS program, the ABS originating firm transfers a specific amount of its assets to SPV and borrows an amount less than what is transferred. This over-collateralization reduces financing costs by allowing underwriters to limit their losses by acquiring the over-collateralized assets when borrowers default, and hence requiring a lower return. The level of over-collateralization generally depends on the risk associated with the underlying assets. For an ABS originated by a non-financial firm, the securitized assets usually consist of account receivables (Liu et al. 2018). Therefore, over-collateralization in

ABS can indicate the likelihood of a firm receiving payments from its customers.

The over-collateralization is measured by the leverage in SPV (*ABS/SPVA*), where a larger ratio of *ABS/SPVA* indicates less over-collateralization. When there is no over-collateralization, ABS*/SPVA* equals one. Panel C of Table 8 shows that the estimated coefficients on *ABS/SPVA* are positive but statistically insignificant, expect in column (2). We only find weak evidence that over-collateralization is negatively related to risk-taking. The finding also implies that the risks of assets securitized are well separated from ABS firms, which is consistent with the view of Liu et al. (2018). An alternative explanation for the finding is that credit rating enhancing measures (e.g. over-collateralization) have been adopted through securitization, resulting in less information asymmetry and thus lower borrowing costs, even though the underlying assets may not be of high quality. However, to the originators, ABS over-collateralization potentially generates other costs (e.g. unable to collect receivables) due to increased exposure to risks, which mitigates the benefits from borrowing cost reduction through ABS (Chen et al., 2008; Chen et al., 2024).

6.4. Anti-recharacterization laws

In the late 1990s and early 2000s, some US states enacted anti-recharacterization laws to enhance creditor protection. Under Chapter 11 of the US bankruptcy code, the secured lenders' repossession of collateral is only enabled with a significant delay or not permitted at all, known as the "automatic stay". In general, the automatic stay does not apply to assets held by a firm's SPVs, which enhances the firm's access to credit markets due to the resulting credit protection. However, if assets transferred to an SPV are recharacterized by a judge as a loan rather than a true sale, the automatic stay applies, and ABS lenders' credit rights are destroyed. Anti-recharacterization laws are introduced to prevent the recharacterization of assets transferred through SPVs, ensuring that collateral is subject to the automatic stay. As a result, anti-recharacterization laws protect ABS lenders by decreasing the likelihood of assets transferred to SPVs being recharacterized. This increases the value of assets transferred by firms to lenders as collateral in ABS from the perspective of credit holders. With an improved ability to borrow, firms utilizing SPVs are more responsive following the adoption of anti-recharacterization laws. We anticipate that corporate risk-taking increases more for ABS users than non-users after the anti-recharacterization laws take effect.

We investigate the effect of ABS borrowings on corporate risk-taking using the staggered

introduction of anti-recharacterization laws. Specifically, we estimate the following model，following Favara et al., (2021):

$$Risk_{ist} = \beta_0 + \beta_1 ABS\_Dummy_{it} + \beta_2 ABS\_Dummy_{it} * LAW_{st} + \beta_3 LAW_{st} + \gamma Y_{it} + \rho_i + \mu_{jt} + \varepsilon_{ist} \quad (5)$$

where LAW_{st} is an indicator variable that equals one if firm *i* is in state *s* with an anti-recharacterization law introduced at *t* or earlier and 0 otherwise. LAW_{st} takes the value of one if a firm is in Texas or Louisiana after 1997, Alabama after 2001, Delaware after 2002, South Dakota after 2003, Virginia after 2004, and Nevada after 2005. Y_{it} is a vector of control variables defined in Appendix II. ρ_i is firm fixed effect, and μ_{jt} is year-industry fixed effects. We estimate Equation (5) using the propensity score matched sample, which is the same sample used in Table 4.

[Insert Table 9 here]

Table 9 presents the estimated coefficients from Equation (5). Our analysis reveals that the estimated coefficients on the interaction term, *ABS_Dummy*Law*, are positive and statistically significant, indicating that ABS borrowings have a stronger impact on corporate risk-taking after the implementation of anti-recharacterization laws. This finding supports our conjecture that financing through ABS can protect creditor rights by increasing the expected value of firms' collateral, which in turn improves firms' access to credit. When creditor protection is stronger due to anti-recharacterization laws, the positive relationship between ABS borrowings and risk-taking becomes more prominent. Furthermore, our study in Table 9 addresses the endogeneity issue, which arises when unobservable factors may affect both the use of ABS and corporate risk-taking. By exploiting the exogenous variation in creditor rights resulting from the adoption of anti-recharacterization laws (Ersahin, 2020; Favara et al., 2021), we find that the protection of creditor rights by SPVs influences corporate activities through the accessibility channel. Our findings also suggest that the moral hazard hypothesis is not supported, as anti-recharacterization laws help to reduce borrowers' moral hazard. Taken together, we conclude that improving access to external financing through ABS leads to an increase in corporate risk-taking.

7. Additional analyses

7.1. Cross-sectional analyses

In this section, we explore whether the relationship between ABS borrowings and corporate risk-taking exhibits any cross-sectional variations with respect to firm-level characteristics: financial constraints, liquidity, firm size, board gender ratio, and CEO gender. The firm-level characteristics that are relatively stable over time around the window of ABS borrowings and can have a significant impact on firms' decision-making, potentially affecting the relationship between ABS borrowings and risk-taking. To investigate these potential variations, we conduct cross-sectional analyses and report the results in Table 10.

[Insert Table 10 here]

7.1.1. Financial constraints

To better understand the relationship between ABS borrowings and corporate risk-taking, we begin by examining the impact financial constraints. Lemmon et al. (2014) find that ABS users are usually restricted in conventional credit markets and may struggle to maintain their operations without securitizing their assets. Consequently, ABS users may be more likely to prioritize debt repayment over risky investment projects (Lemmon et al., 2014). Previous studies have shown that financially constrained firms tend to hold more cash (Denis and Sibilkov, 2009), exhibit higher cash-to-cash flow sensitivity (Almeida et al., 2004; Erel et al., 2015), exhibit higher investment-to-cash flow sensitivity (Fazzari et al., 1988), and engage in less investment (Guariglia, 2008; Erel et al., 2015). Moreover, a survey of CFOs around the world during the global financial crisis of 2008 by Campello et al. (2010) reveals that credit constraints affect real firm activities. Specifically, firms with financial constraints tend to cut back on risky investments and pass up attractive investment opportunities.

We adopt the KZ index to measure a firm's financial constraint, as proposed by Kaplan and Zingales (1997). The KZ index reflects the wedge between the internal and external costs of funds. Firms with financial constraints generally have higher costs for external financing, leading to a higher KZ index value. Panel A of Table 10 presents our findings regarding the impact of financial constraints on the relationship between ABS borrowings and corporate risk-taking. We find that the estimated coefficients on the interaction term, *ABS_size*KZ*, are negative and statistically significant, suggesting that financial constraints moderate the positive effect of ABS borrowings on corporate risk-taking.[18]

[18] In untabulated tests, we find qualitatively the same results when we use alternative financial constraint measures e.g., the WW index of Whited and Wu (2006).

7.1.2. Liquidity constraints

We next examine the impact of liquidity on the relationship between ABS borrowings and corporate risk-taking. To measure the level of liquidity, we employ a commonly used metric, a firm's cash flow (*Cashflow*), which is defined as the net income (or loss) plus depreciation on fixed assets. A higher value of *Cashflow* indicates that a firm is less constrained by liquidity issues (e.g., Audretsch and Elston, 2002). Based on our liquidity hypothesis, the effect of ABS on corporate risk-taking is more pronounced for firms with liquidity constraints. To test this conjecture, we examine the interaction term *ABS_Size*Cashflow*, as presented in Panel B of Table 10. Notably, the estimated coefficients on the interaction term *ABS_Size*Cashflow* are negative and statistically significant, leading support to our liquidity hypothesis.

7.1.3. Firm size

Firm size is one of the important determinants of firm policies. In general, small firms exhibit more risk-seeking behaviors than large firms. Firm size also indicates a firm's stage in its life circle. Based on the corporate life circle theory, firm size progressively increases as firms shift from the growth stage to the mature stage and then firm size decreases as firms move from the mature stage to the decline stage (Dickinson 2011). Previous studies suggest that corproate risk-taking tends to be higher in the growth and decline stages of a firm's life cycle but be lower in the mature stage (Habib and Hasan 2017). Moreover, large firms usually have a better access to various external financing than small firms. Therefore, the contribution of ABS borrowings to large firms' borrowing capacity is limited. Taken together, we expect that a larger firm will mitigate the effect of ABS borrowings on corporate risk-taking since firms' risk-taking incentives are related to their stage in the life circle.

Table 10 Panel C presents the results of the effect of firm size on the relationship between ABS borrowings and corproate risk-taking. As we expected, the estimated coefficients on the interaction term, *ABS_Size*Size*, is negative and statistically significant, suggesting that firm size mitigates the positive effect of ABS borrowings on corporate risk-taking.

7.1.4. Board gender diversity and CEO gender

As key gatekeeps and decision-makers of firms, the board of directors and CEOs play an important role in shaping corporate activities and performance (Bertrand and Schoar, 2003). Specifically, previous studies indicate that the gender composition of these leaders has a significant impact on corporate outcomes policies (e.g., Faccio et al. 2016). In this section, we

examine whether the gender of directors and CEOs affects the relationship between ABS borrowings and corporate risk-taking.

The board of directors provides high-level oversight and guidance of corporate activities. Previous studies have highlighted the role of female directors on corporate board in shaping corporate policies (e.g., Khaw et al., 2016; Bernile et al. 2018). To examine the effect of female directors on the relationship between ABS borrowings and risk-taking, we define *Female_Ratio* as the ratio of female directors to the total number of directors. Panel D of Table 10 shows that the estimated coefficients on the interaction term, *ABS_Size*Female_Ratio*, are positive and statistically significant, indicating that firms with a higher proportion of female directors tend to take more risks after securitization.

We also investigate the role of CEO gender on the relationship between ABS borrowings and risk-taking. We define an indicator variable, Female, that equals one if a firm's CEO is female and zero otherwise. Panel E of Table 10 shows that the estimated coefficients on the interaction term, *ABS_Size*Female*, are positive and statistically significant, indicating that firms managed by female CEOs take more risks after securitization. In summary, our results suggest that female board directors and female CEOs strengthen the positive relationship between ABS borrowings and corporate risk-taking.

7.2. Market-based risk measures

The risk-taking measures in our empirical analysis are based on return on assets, an accounting-based measure. To ensure that our main finding is not subject of measurement errors, we examine two alternative risk-taking measures that are based on stock returns. The first alternative risk measure is total risk ($\sigma_{12/24/60\text{-}month}$), defined as the standard deviation of a firm's stock returns over 12, 24, or 60 months after the origination of ABS borrowings (Baixauli-Soler et al. 2015; Chen et al. 2006). Our second alternative risk measure is idiosyncratic risk, which is the standard deviation of the residuals of the Capital Asset Pricing Model (CAPM) or Fama–French three-factor model (denoted as σ_{CAPM} or σ_{FF3}).

[Insert Table 11 here]

We replace our dependent variables in Equation (3) with the market-based risk measures and report the regression results in Table 11. Consistent with our main findings, the estimated coefficients on *ABS_Size* are all positive and stasitically significant.

7.3. ABS borrowings, investment opportunities, and capital allocation efficiency

In this section, we study how firms' use of ABS affects their capital allocation efficiency and firm value. If firms use ABS as an alternative source of credit when conventional credit markets are unavailable, then ABS financing may benefit firms with good investment opportunities.

First, we examine whether the annual growth of capital expenditure increases with ABS borrowings when there are good *ex-ante* investment opportunities. We define the dependent variable, annual growth of capital expenditure (*Capex*), as the growth in net gross plant, property, and equipment, over total assets. We measure the *ex-ante* investment opportunities using Tobin's Q and the Market-to-Book ratio following Basu et al. (2022). Columns (1)-(4) of Table 12 show that the estimated coefficients on *Tobins'Q * ABS_Size* and *MTB * ABS_Size* are all positive and statistically significant, suggesting that firms' capital allocation becomes more efficient with ABS borrowings when there are good investment opportunities.

Second, we test whether there is firm value-added with more ABS borrowings when firms' investment rate is high. Following İmrohoroğlu and Tüzel (2014), we define *Value-added* as the ratio of operating income before depreciation and amortization plus labor expenses to total assets. The investment rate, *CapitalStock*, is defined as the ratio of gross plant, property, and equipment to total assets. Columns (5) and (6) of Table 12 show that the estimated coefficients on *CapitalStock*ABS_Size* are positive and statistically significant, suggesting that ABS borrowings increase firm value-added when a firm's investment rate is high.

Overall, the findings in Table 12 indicate that ABS borrowings increase firms' capital allocation efficiency and result in higher firm value-added. Therefore, ABS financing may benefit firms with good investment opportunities and high investment rates.

[Insert Table 12 here]

8. Concluding remarks

This study demonstrates how utilizing ABS affects non-financial firms' risk-taking behavior. Based on the hand-collected data from 509 US public firms that originate ABS between 1997 and 2017, we find a positive relationship between the use of ABS usage and

corporate risk-taking. Specifically, firms with larger ABS borrowing capacity and lower ABS credit consumption exhibit greater risk-taking. However, we do not observe a significant relationship between over-collateralization and risk-taking.

Our main finding is robust to alternative risk-taking measures and regression models. Moreover, strengthened creditor rights following the adoption of anti-recharacterization laws further encourage ABS users to take more risks. Our cross-sectional analyses show that ABS can enhance corporate risk-taking by improving access to credit and releasing liquidity constraints. We also find that ABS usage affects risk-taking differently across firms, with firm size moderating the effect and board gender diversity and female CEOs enhancing it. At last, we show that firms borrowing more through ABS demonstrate increased capital allocation efficiency.

Our study has important implications for various firm stakeholders. Firms can benefit from considering ABS financing as a way to alleviate financial constraints and increase risk-taking incentives. Managers should manage the risks in their account receivables in addition to their regular risk management. ABS market participants, such as SPVs and ABS originators, can benefit from a better understanding of the relationship between ABS and corporate risk-taking. Investors can gain a broader perspective on a firm's risk profile through the disclosed ABS information. Policymakers could consider opening up ABS markets to non-financial firms with greater creditor rights protection, particularly for small firms and firms with female CEOs and board directors, in order to stimulate risk-taking and promote long-term economic welfare.

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Tables and Figures

Table 1. Sample distribution

This table presents the distribution of ABS firm–year observations by year (Panel A) and the distribution of ABS firms by industry (Panel B).

Panel A: Distribution of ABS firm–year observations by year

Year	Number of ABS firm–year obs.	Percentage	Year	Number of ABS firm–year obs.	Percentage
1997	133	4.0%	2007	164	5.2%
1998	143	4.6%	2008	157	5.0%
1999	162	5.2%	2009	152	4.9%
2000	190	6.1%	2010	130	4.1%
2001	231	7.4%	2011	120	3.8%
2002	223	7.1%	2012	115	3.7%
2003	207	6.6%	2013	110	3.9%
2004	199	6.4%	2014	112	4.0%
2005	173	5.5%	2015	102	3.3%
2006	159	5.1%	2016	93	3.0%
			2017	32	1.0%
			Total	3,104	100%

Panel B: Distribution of ABS firms by industry

Industry	Number of ABS firms	Percentage
Mining & Construction	25	4.9%
Manufacturing	278	54.6%
Transportation & Communications	45	8.8%
Wholesale & Retail Trade	95	18.7%
Services	62	12.2%
Others	4	0.8%
Total	509	100%

Table 2. Summary statistics

This table reports the summary statistics of the variables in our main empirical analyses. Our sample consists of public firms with available data for our empirical analyses between 1997 and 2017. Panel A summarizes ABS-related variables for ABS users. Panel B reports the summary statistics of the risk-taking proxy variables and firm characteristics for ABS users and non-users. We include the mean-difference and median-difference tests in Panel B. Variables are defined in Appendix II. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Panel A: ABS information (2,817 firm–year observations in total when *ABS_Dummy*=1)

	N	Mean	S.D.	P25	Median	P75
ABS/TA	2,112	0.068	0.088	0.018	0.040	0.075
ABS_Size	2,112	-3.322	1.212	-4.035	-3.223	-2.578
(Lmt-ABS)/TA	1,944	0.031	0.035	0.005	0.019	0.045
Lmt/TA	2,287	0.069	0.050	0.033	0.053	0.088
ABS/SPVA	988	0.593	0.251	0.402	0.629	0.812

Panel B: Firm-level variables

	ABS users				Non-users				ABS users minus non-users	
	N	Mean	Median	S.D.	N	Mean	Median	S.D.	Mean-Diff.	Median-Diff.
Corporate risk-taking variables										
Risk1	2,817	0.010	0.007	0.010	88,364	0.058	0.015	0.103	-0.048***	-0.008***
Risk2	2,817	0.027	0.018	0.029	88,364	0.145	0.040	0.253	-0.118***	-0.022***
Control variables										
Leverage	2,817	0.323	0.298	0.201	88,364	0.219	0.148	0.230	0.104***	0.134***
Size	2,817	8.270	8.270	1.327	88,364	5.349	5.431	2.953	2.921***	2.894***
ROA	2,817	0.021	0.020	0.021	88,364	-0.040	0.087	0.436	0.061***	0.029***
Sales_Growth	2,817	0.080	0.051	0.287	88,364	0.067	0.073	0.295	0.013***	-0.027***
Age	2,817	3.171	3.296	0.781	88,364	2.200	2.197	0.491	0.971***	0.106***
Receivables	2,817	0.173	0.140	0.127	88,364	0.140	0.116	0.113	0.033***	0.021***
Inventory	2,817	0.148	0.128	0.118	88,364	0.100	0.051	0.118	0.048***	0.066***
MTB	2,817	0.837	0.634	0.748	88,364	2.580	1.798	3.448	-1.743**	0.075**
Earnings	2,817	0.123	0.119	0.065	88,364	-0.093	0.044	0.450	0.216***	0.033***
R&D	2,817	0.013	0.000	0.027	88,364	0.057	0.000	0.106	-0.044***	0.000
Rating	2,817	0.812	1.000	0.389	88,364	0.274	0.000	0.095	0.538***	1.000***
Earnings_Range	2,817	0.027	0.019	0.026	88,364	0.120	0.044	0.238	-0.093***	-0.025***

Table 3. Propensity score matching

This table reports the results of our propensity score matching. Panel A presents the estimated coefficients of Equation (1), predicting the likelihood of firms using ABS. The dependent variable, ABS_Dummy, is an indicator variable that equals to one if a firm originates ABS in a firm–year and zero otherwise. The sample includes ABS users and non-users with non-missing values of the covariates in the probit regression during the period 1997–2017. Panel B presents the means of the covariates of ABS users and their matched non-users. The last column in Panel B presents the t-test statistics of the differences in the means of the covariates between ABS users and non-users. Variables are defined in Appendix II. The *z* statistics reported in parentheses below the

Panel A: The likelihood of ABS borrowing – Probit model	
Dependent variable:	*ABS_Dummy*
Leverage	0.652***
	(4.33)
Size	0.300***
	(14.92)
Receivables	1.917***
	(6.25)
Inventory	1.315***
	(4.16)
MTB	-0.013
	(-1.60)
Earnings	-0.442*
	(-1.87)
R&D	-3.041***
	(-3.18)
Rating	0.397***
	(5.65)
Earnings_Range	-2.132**
	(-2.55)
Constant	-5.948***
	(-25.81)
Industry fixed effects	Yes
Year fixed effects	Yes
Number of Obs.	90,838
Pseudo R^2	0.277

Panel B: Characteristics before ABS borrowing			
	ABS users	Matched non-users	Mean-Diff.
Receivables	0.163	0.188	-0.025***
Leverage	0.298	0.310	-0.012
Size	8.197	8.747	-0.551***
Inventory	0.138	0.142	-0.003
MTB	2.407	2.255	0.152
Earnings	0.078	0.072	0.005
R&D	0.013	0.013	0.000
Rating	0.809	0.782	0.027
Earnings_Range	0.029	0.028	0.001
Propensity Score	0.121	0.112	0.009

Table 4. Difference-in-Differences approach: the origination of ABS and risk-taking

This table reports the results of the effect of ABS origination on corporate risk-taking using a difference-in-differences approach. The sample consists of ABS users and their matched non-users from 1997 to 2017. The dependent variables are two risk-taking measures, *Risk1* and *Risk2*, which are multiplied by 100 for readability. The independent variable of interest, *ABS_Dummy*, is an indicator variable that equals one if a firm originates ABS in a given year and zero otherwise. Variables are defined in Appendix II. The *t* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Dependent variable:	*Risk1*	*Risk2*
	(1)	(2)
ABS_Dummy	0.092***	0.256***
	(2.737)	(2.649)
Leverage	-0.015	-0.078
	(-0.098)	(-0.182)
Size	-0.187***	-0.413**
	(-2.780)	(-2.349)
ROA	0.254	0.801
	(0.516)	(0.688)
SaleGrowth	-0.039	0.013
	(-0.376)	(0.053)
Age	-0.151	-0.708
	(-0.614)	(-1.096)
Constant	2.857***	7.662***
	(4.132)	(4.071)
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Number of Obs.	4,169	4,169
Adjusted R^2	0.665	0.649

Table 5. Pooled OLS regression: ABS borrowing size and risk-taking

This table reports the results of the effect of ABS borrowings on corporate risk-taking estimated using a pooled OLS regression. The sample consists of ABS users that originate ABS borrowings from 1997 to 2017. The dependent variables are two risk-taking measures, *Risk1* and *Risk2*, which are multiplied by 100 for readability. The independent variable of interest, *ABS_Size*, is the natural log of ABS borrowings scaled by total assets. ABS borrowings include debt in SPVs if ABS borrowings are off-balance financing. Variables are defined in Appendix II. The *t* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Dependent variable:	*Risk1*	*Risk2*
	(1)	(2)
ABS_Size	0.096***	0.250***
	(2.784)	(2.591)
Leverage	0.096	0.144
	(0.299)	(0.173)
Size	-0.187***	-0.497***
	(-4.451)	(-4.450)
ROA	-0.789	-2.667
	(-0.951)	(-1.120)
SaleGrowth	-0.081	-0.202
	(-0.599)	(-0.525)
Age	0.233*	0.648*
	(1.903)	(1.895)
Constant	3.483***	8.755***
	(6.056)	(5.839)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Number of Obs.	1,869	1,869
Adjusted R^2	0.159	0.151
Number of firm clusters	383	383

Table 6. Heckman two-stage procedure

This table reports the results of the Heckman two-stage procedure for the effect of ABS borrowings on corporate risk-taking. Panel A reports the first-stage selection equation estimated by a Probit model, where the dependent variable is *ABS_Dummy*, an indicator variable that equals one if a firm originates ABS in a given year and zero otherwise. Panel B reports the second-stage equation, where the dependent variable is one of the two risk-taking measures, *Risk1* and *Risk2*, multiplied by 100 for readability. The dependent variable of interest is *ABS_Size*, which is the natural log of ABS borrowings scaled by total assets. The Inverse Mills Ratio (IMR) in the second-stage regression adjusts for the potential selection bias. Variables are defined in Appendix II. The *t* and *z* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Panel A: First-stage regression		
Dependent variable:	*ABS_Dummy*	*ABS_Dummy*
	(1)	(2)
Receivables	1.704***	1.704***
	(12.69)	(12.69)
Leverage	0.740***	0.740***
	(10.13)	(10.13)
Size	0.239***	0.239***
	(24.69)	(24.69)
Inventory	1.413***	1.413***
	(11.98)	(11.98)
MTB	-0.015***	-0.015***
	(-2.90)	(-2.90)
Earnings	-0.449***	-0.449***
	(-3.18)	(-3.18)
R&D	-1.497***	-1.497***
	(-3.86)	(-3.86)
Rating	0.361***	0.361***
	(9.47)	(9.47)
Earnings_Range	-3.161***	-3.161***
	(-6.78)	(-6.78)
Constant	-4.055***	-4.055***
	(-46.15)	(-46.15)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Number of Obs.	90,118	90,118
Panel B: Second-stage regression		
Dependent variable:	*Risk1*	*Risk2*
	(1)	(2)
IMR	0.921***	2.449***
	(10.96)	(10.76)
ABS_Size	0.133***	0.346***
	(6.87)	(6.576)
Leverage	1.096***	2.928***
	(10.46)	(10.347)
Size	0.667***	1.768***
	(4.82)	(4.731)

ROA	0.080***	0.224***
	(2.69)	(2.773)
SaleGrowth	-1.349***	-3.916***
	(-3.89)	(-4.174)
Age	-0.130	-0.405
	(-1.08)	(-1.249)
Constant	0.358***	1.075***
	(3.71)	(4.118)
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Number of Obs.	1,655	1,655

Table 7. Tests to address omitted variable bias and reverse causality

This table reports the results of the tests to address omitted variable bias and reverse causality. In Panel A, we add three additional control variables in Equations (2) and (3): *Vega, Blockownerhsip,* and *Str_Cul*. In Panel B, we control for the firm and industry×year fixed effects in Equations (2) and (3). In columns (1) and (2) of Panel C, we replace *ABS_Dummy* with five year dummies $Year^{-2}$, $Year^{-1}$, $Year^{0}$, $Year^{-1}$, and $Year^{2}$ in Equation (2). $Year^{n}$ equals one if a firm–year is the *n*-th year relative to the origination of ABS borrowings and zero otherwise. In columns (1) and (2) of Panel C, the dependent variables are one of the two risk-taking measures, *Risk1* and *Risk2*, which are multiplied by 100 for readability. In columns (3) – (6) of Panel C, we replace the dependent variables with one-year forward risk-taking measures, $Risk1_{t+1}$ and $Risk2_{t+1}$. Control variables and constants are not reported in this table for brevity. Variables are defined in Appendix II. The *t* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Panel A: Additional controls

Dependent variable:	*Risk1*	*Risk2*	*Risk1*	*Risk2*
	(1)	(2)	(3)	(4)
ABS_Dummy	0.105**	0.280**		
	(2.28)	(2.03)		
ABS_Size			0.072***	0.191***
			(3.93)	(3.52)
Vega	0.000	-0.000	0.000	0.000
	(0.08)	(-0.14)	(0.33)	(0.18)
Blockownerhsip	0.095	0.094	0.337**	0.820*
	(0.65)	(0.22)	(1.97)	(1.76)
Str_Cul	0.034	0.109	0.039	0.126
	(1.05)	(1.15)	(0.87)	(1.09)
Control variables	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	No	No
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	No	Yes	Yes
Number of Obs.	1,991	1,991	903	903

Panel B: High dimensional fixed effects

Dependent variable:	*Risk1*	*Risk2*	*Risk1*	*Risk2*
	(1)	(2)	(3)	(4)
ABS_Dummy	0.093***	0.267***		
	(2.73)	(2.73)		
ABS_Size			0.048**	0.114*
			(2.22)	(1.86)
Control variables	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Industry×Year fixed effects	Yes	Yes	Yes	Yes
Number of Obs.	4,152	4,152	1,869	1,869

Panel C: Tests for reverse causality

Dependent variable:	*Risk1*	*Risk2*	$Risk1_{t+1}$	$Risk2_{t+1}$	$Risk1_{t+1}$	$Risk2_{t+1}$
	(1)	(2)	(3)	(4)	(5)	(6)
$Year^{-2}$	-0.101***	-0.296***				
	(-2.73)	(-2.65)				

Year^{-1}	-0.037	0.084				
	(-0.90)	(0.72)				
Year^{0}	0.174***	0.389**				
	(2.73)	(2.33)				
Year^{1}	-0.099*	-0.243*				
	(1.75)	(1.87)				
Year^{2}	0.061	0.119				
	(1.39)	(1.02)				
ABS_Dummy			0.088**	0.206**		
			(2.23)	(2.10)		
ABS_Size					0.099***	0.235**
					(2.96)	(2.43)
Firm fixed effect	Yes	Yes	Yes	Yes	No	No
Industry fixed effect	No	No	No	No	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	4,169	4,169	4,169	4,169	1,770	1,770

Table 8. ABS contract characteristics and corporate risk-taking

This table reports the results of the effect of the details of ABS contracts on corporate risk-taking, estimated using pooled OLS regressions. Panel A presents the relation between ABS borrowing capacity measured by *Lmt/TA* and risk-taking. Panel B presents the relation between unused ABS borrowing capacity measured by *(Lmt-ABS)/TA* and risk-taking. Panel C presents the relation between over-collateralization measured by *ABS/SPVA* and risk-taking. The dependent variables are one of the two risk-taking measures, *Risk1* and *Risk2*, which are multiplied by 100 for readability. Control variables and constants are not reported in this table for brevity. Variables are defined in Appendix II. The *t* and *z* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Dependent variable:	*Risk1*		*Risk2*	
	OLS	Heckman	OLS	Heckman
	(1)	(2)	(3)	(4)
Panel A: ABS Borrowing capacity				
Lmt/TA	2.726**	3.616***	6.844**	8.891***
	(2.20)	(5.85)	(2.01)	(5.27)
IMR		1.409***		3.686***
		(14.66)		(14.20)
Control variables	Yes	Yes	Yes	Yes
Industry & Year fixed effects	Yes	Yes	Yes	Yes
Number of Obs.	2,077	2,077	2,077	2,077
Adjusted R^2	0.207		0.214	
Panel B: Unused ABS credit				
(Lmt-ABS)/TA	3.546***	4.530***	10.000***	12.630***
	(2.91)	(6.82)	(2.80)	(7.00)
IMR		0.810***		2.071***
		(11.99)		(11.39)
Control variables	Yes	Yes	Yes	Yes
Industry & Year fixed effects	Yes	Yes	Yes	Yes
Number of Obs.	1,743	1,743	1,743	1,743
Adjusted R^2	0.160		0.158	
Panel C: Over-collateralization				
ABS/SPVA	0.193	0.196*	0.403	0.373
	(1.10)	(1.78)	(0.87)	(1.28)
IMR		0.636***		1.677***
		(5.87)		(5.85)
Control variables	Yes	Yes	Yes	Yes
Industry & Year fixed effects	Yes	Yes	Yes	Yes
Number of Obs.	896	896	896	896
Adjusted R^2	0.255		0.224	

Table 9. The effect of anti-recharacterization laws

This table reports the results of the effect of anti-recharacterization laws on the relationship between the ABS borrowings and corporate risk-taking. The sample is the same as the propensity score matched sample used in Table 4. The dependent variables are one of the two risk-taking measures, *Risk1* and *Risk2*, which are multiplied by 100 for readability. *ABS_Dummy* is an indicator variable that equals one if a firm originates ABS in a given year and zero otherwise. *LAW* is an indicator variable that equals one if a firm incorporates in Texas or Louisiana after 1997, Alabama after 2001, Delaware after 2002, South Dakota after 2003, Virginia after 2004, and Nevada after 2005, and 0 otherwise. Variables are defined in Appendix II. The *t* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Dependent variable:	*Risk1*	*Risk2*
	(1)	(2)
ABS_Dummy	0.072**	0.220**
	(1.98)	(2.09)
*ABS_Dummy * LAW*	0.246**	0.562*
	(2.06)	(1.71)
LAW	-0.071	-0.230
	(-0.47)	(-0.52)
Leverage	0.065	0.121
	(0.43)	(0.29)
Size	-0.221***	-0.496***
	(-3.23)	(-2.77)
ROA	0.237	0.959
	(0.49)	(0.82)
SaleGrowth	-0.026	-0.016
	(-0.26)	(-0.06)
Age	-0.236	-0.883
	(-0.96)	(-1.37)
Constant	3.332***	8.706***
	(4.75)	(4.58)
Firm fixed effect	Yes	Yes
Industry×Year fixed effect	Yes	Yes
Number of Obs.	4,152	4,152
Adjusted R^2	0.674	0.658

Table 10. Cross-sectional analyses

This table reports the cross-sectional analyses of how firm-level characteristics affect the relationship between ABS borrowings and corporate risk-taking. Panel A, Panel B, Panel C, Panel D, and Panel E present the tests of the effect of financial constraint, liquidity, firm size, board gender ratio, and CEO gender, respectively. The dependent variables are one of the two risk-taking measures, *Risk1* and *Risk2*, which are multiplied by 100 for readability. All regressions include the industry and year fixed effects. Control variables and constants are not reported in this table for brevity. Variables are defined in Appendix II. The *t* and *z* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Dependent variable:	*Risk1*		*Risk2*	
	OLS	Heckman	OLS	Heckman
	(1)	(2)	(3)	(4)
Panel A: Financial constraint				
ABS_Size	0.148***	0.175***	0.406***	0.481***
	(4.06)	(8.44)	(3.86)	(8.56)
*ABS_Size * KZ*	-0.023**	-0.020***	-0.067**	-0.060***
	(-2.25)	(-7.44)	(-2.25)	(-8.13)
KZ	-0.017	-0.015***	-0.042	-0.034***
	(-1.63)	(-3.42)	(-1.47)	(-2.97)
IMR		0.901***		2.654***
		(7.69)		(8.25)
Panel B: Liquidity				
ABS_Size	0.101***	0.136***	0.264***	0.353***
	(2.93)	(6.99)	(2.73)	(6.69)
*ABS_Size * Cashflow*	-0.003**	-0.002*	-0.009**	-0.006*
	(-2.25)	(-1.65)	(-2.14)	(-1.75)
Cashflow	-0.003*	-0.002	-0.009*	-0.006
	(-1.87)	(-1.07)	(-1.83)	(-1.22)
IMR		0.913***		2.425***
		(10.87)		(10.67)
Panel C: Firm size				
ABS_Size	0.663***	0.678***	1.663***	1.700***
	(2.91)	(7.34)	(2.65)	(6.79)
*ABS_Size * Size*	-0.068***	-0.065***	-0.170**	-0.163***
	(-2.66)	(-5.97)	(-2.43)	(-5.48)
Size	-0.407***	-0.150***	-1.046***	-0.350***
	(-3.73)	(-3.11)	(-3.66)	(-2.67)
IMR		1.024***		2.749***
		(9.92)		(9.84)
Panel D: Board gender diversity				
ABS_Size	0.069**	0.080***	0.205**	0.231***
	(2.02)	(4.31)	(2.14)	(4.39)
*ABS_Size * Female_Ratio*	0.591***	0.546***	1.657**	1.589***
	(2.60)	(3.49)	(2.48)	(3.60)
Female_Ratio	0.445	0.471**	1.340	1.393**
	(1.07)	(2.08)	(1.17)	(2.19)

IMR		1.338***		3.756***
		(11.48)		(11.45)
Panel E: CEO gender				
ABS_Size	0.097**	0.110***	0.283**	0.317***
	(2.50)	(5.77)	(2.57)	(5.91)
*ABS_Size * Female*	0.247***	0.138	0.662***	0.356
	(3.31)	(1.22)	(3.49)	(1.13)
Female	-0.068	-0.072	-0.226	-0.232
	(-0.54)	(-0.48)	(-0.74)	(-0.56)
IMR		1.303***		3.706***
		(11.49)		(11.57)

Table 11. Market-based risk measures

This table presents the results of the tests of the effect of ABS borrowings on alternative firm risk measures. In Panel A, the dependent variables are the standard deviations of a firm's stock returns over 12, 24, and 60 months. In Panels B and C, the dependent variables are the standard deviations of the residual terms estimated the CAPM model and the Fama–French three-factor model. All regressions include the industry and year fixed effects. Control variables and constants are not reported in this table for brevity. Variables are defined in Appendix II. The *t* and *z* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Panel A: Total risk						
Dependent variables:	$\sigma_{12\text{-month}}$		$\sigma_{24\text{-month}}$		$\sigma_{60\text{-month}}$	
	OLS	Heckman	OLS	Heckman	OLS	Heckman
	(1)	(2)	(3)	(4)	(5)	(6)
ABS_Size	0.001***	0.001***	0.001***	0.001***	0.001**	0.001***
	(2.92)	(3.46)	(2.71)	(3.81)	(2.55)	(4.84)
IMR		-0.001		-0.001		-0.001
		(-0.95)		(-0.92)		(-1.54)
Panel B: Idiosyncratic risk (CAPM)						
Dependent variables:	$\sigma_{CAPM(12m)}$		$\sigma_{CAPM(24m)}$		$\sigma_{CAPM(60m)}$	
	OLS	Heckman	OLS	Heckman	OLS	Heckman
	(1)	(2)	(3)	(4)	(5)	(6)
ABS_Size	0.001***	0.001***	0.001***	0.001***	0.001**	0.001***
	(2.75)	(3.25)	(2.60)	(3.59)	(2.36)	(4.53)
IMR		0.000		0.000		-0.001
		(0.01)		(0.10)		(-0.66)
Panel C: Idiosyncratic risk (3-factor model)						
Dependent variables:	$\sigma_{FF3(12m)}$		$\sigma_{FF3(24m)}$		$\sigma_{FF3(60m)}$	
	OLS	Heckman	OLS	Heckman	OLS	Heckman
	(1)	(2)	(3)	(4)	(5)	(6)
ABS_Size	0.001***	0.001***	0.001**	0.001***	0.001**	0.001***
	(2.66)	(3.17)	(2.53)	(3.51)	(2.32)	(4.49)
IMR		0.000		0.000		-0.000
		(0.08)		(0.23)		(-0.57)

Table 12. ABS, investment opportunities, and capital allocation efficiency

This table presents the effect of investment opportunities on the relationship between ABS borrowings and capital allocation efficiency. In columns (1) and (2), we include the interaction term between ABS borrowings and Tobin's Q. In columns (3) and (4), we include the interaction term between ABS borrowings and Market-to-Book ratio. The dependent variables in column (1)-(4) are the annual growth of capital expenditure (*Capex*). In columns (5) and (6), we include the interaction term between ABS borrowings and a firm's capital stock (proxy for investment rate). The dependent variables in columns (5) and (6) are value-added. All regressions include the industry and year fixed effects. Control variables and constants are not reported in this table for brevity. Variables are defined in Appendix II. The *t* and *z* statistics reported in parentheses below the coefficients are based on standard errors adjusted for heteroskedasticity and clustered at the firm level. * p < 0.10, ** p < 0.05, and *** p < 0.01.

Dependent variables:	Capex		Capex		Value-added	
	OLS	Heckman	OLS	Heckman	OLS	Heckman
	(1)	(2)	(3)	(4)	(5)	(6)
Tobins'Q	0.113***	0.091**				
	(2.76)	(2.19)				
*Tobins'Q * ABS_Size*	0.035**	0.029**				
	(2.48)	(2.26)				
MTB			0.039***	0.030**		
			(3.46)	(2.26)		
*MTB * ABS_Size*			0.011***	0.008**		
			(3.04)	(2.22)		
CapitalStock					0.352***	0.323***
					(2.64)	(5.43)
*CapitalStock * ABS_Size*					0.075**	0.070***
					(2.55)	(4.41)
ABSSize	-0.091***	-0.086***	-0.058***	-0.057***	0.000	0.000
	(-2.86)	(-3.69)	(-3.22)	(-4.30)	(0.34)	(0.43)
CashFlow	0.401***	0.496***	0.351***	0.465***	0.005***	0.005***
	(4.31)	(3.87)	(3.73)	(3.65)	(3.83)	(6.32)
Age	-0.158**	-0.132**	-0.150**	-0.124**	0.001	0.001
	(-2.43)	(-2.46)	(-2.33)	(-2.31)	(0.59)	(1.45)
Constant	0.127	0.394**	0.212	0.466**	0.002	0.000
	(0.83)	(2.03)	(1.47)	(2.50)	(0.79)	(0.02)
IMR		-0.004		-0.002		0.000**
		(-0.11)		(-0.05)		(2.09)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	1910	1910	1910	1910	1727	1727
Adjusted R^2	0.029		0.029		0.165	

Figure 1

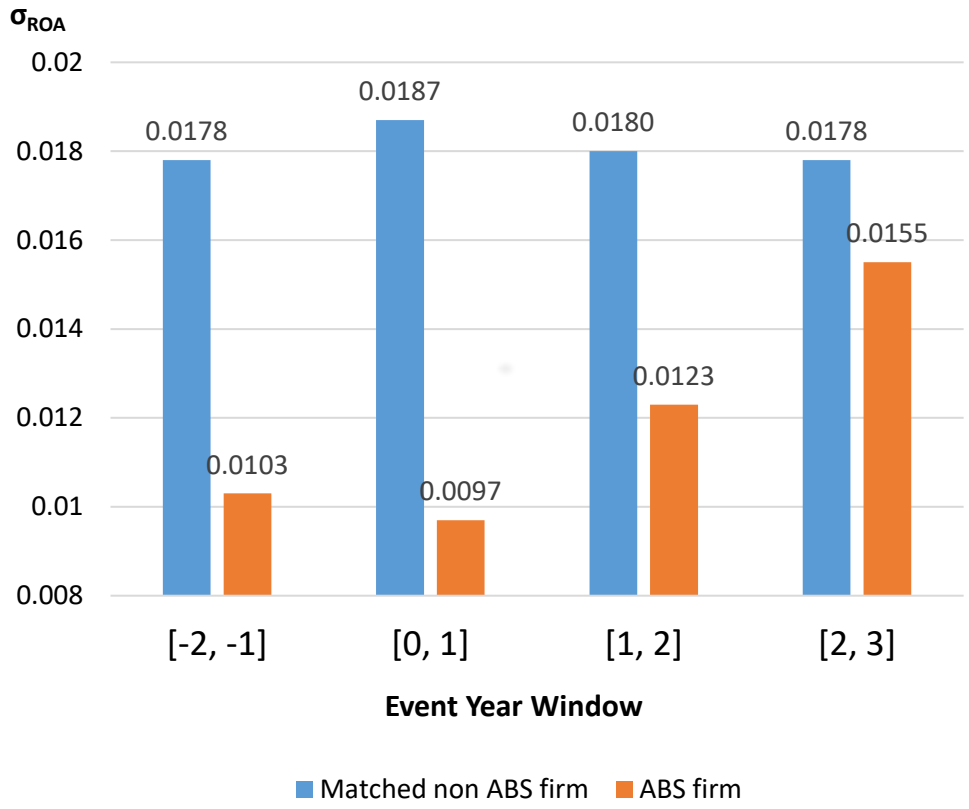

Figure 1. Average risk-taking around the year of ABS borrowings

This figure illustrates the average corporate risk-taking for ABS firms and their matched non-ABS firms, measured by the standard deviation of return on assets (σ_{ROA}), before and after the year of ABS borrowings. The sample consists of ABS firms and their matched non-ABS firms from 1997 to 2017. The matching is based on propensity scores estimated by a Probit regression presented in Panel A of Table 3. For ABS firms, the years of ABS borrowings are defined as event year 0, while the event years of non-ABS firms are defined based on their ABS counterparts.

Appendix I. ABS data collection

Appendix 1.1.

This section provides the list of the keywords (both in American English and British English) which we use to search for ABS users and relevant ABS financing information in 10-K filings:

securitisation / securitization

securitised / securitized

receivable sale / receivable sales / receivables sale / receivables sales

sale of receivable sale of receivables / sales of receivables

receivable sold / receivables sold

receivable financing / receivables financing

receivable purchase / receivables purchase

Appendix 1.2.

This section provides an illustration of our data collecting process. We start with an exhaustive search of 10-K filings submitted to the SEC, spanning over 10,000 firms across two decades. After initially eliminated the filings that do not contain any of the predetermined keywords, our initial scope is narrowed down to documents from approximately 4,000 firms. Subsequent steps involve in manually checking of these the filling to verify securitization activity and collect the relevant information for our study. Below is an illustrative example of how we collect the detail of the ABS information. Similar examples can be found in the Internet Appendix of Lemmon et al. (2014).

We use the extracted 10-K filing of Smurfit-Stone Container Corporation (SSCE) for illustration purposes. SSCE is an industry's leading integrated manufacturer of paperboard and paper-based packaging in North America. SSCE's 2007 10-K filing states that "SSCE has a

$475 million accounts receivable securitization program whereby it sells, without recourse, on an ongoing basis, certain of its accounts receivable to SRC. SRC is a wholly owned non-consolidated subsidiary of SSCE and a qualified special-purpose entity under the provisions of SFAS No. 140, "Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities." Accordingly, accounts receivable sold to SRC for which we do not retain an interest are not included in our consolidated balance sheets. SRC transfers the receivables to a non-consolidated subsidiary, a limited liability company, which has issued notes to third-party investors. On December 31, 2007, $585 million of accounts receivable had been sold under the program, of which $223 million was retained by SSCE as a subordinated interest and recorded in retained interest in receivables sold in the accompanying consolidated balance sheet."

The above scripts are from:
https://www.sec.gov/Archives/edgar/data/94610/000110465907015012/a07-5492_110k.htm.

According to SSCE's 10-filing, we identify SSCE as an ABS user in 2007. We also code *Lmt* as 475 million, *SPVA* as 585 million, retained interest as 223 million, and *ABS* as 362 million (585–223). The leverage of SSCE's SPV is 0.619 (362/585).

Appendix II. Variable definitions

Variable	Definition	Data sources
Panel A: Corporate Risk-taking		
Risk1	The standard deviation of quarterly return on assets (ROA) during the two years after a fiscal year in which a firm uses ABS (multiplied by 100 for readability).	*Compustat*
Risk2	The difference between the maximum and minimum quarterly ROA during the two years after a fiscal year in which a firm uses ABS (multiplied by 100 for readability).	*Compustat*
Panel B: Asset-Backed-Securitization		
ABS_Dummy	An indicator variable that equals one if a firm uses ABS in a fiscal year, and zero otherwise.	*EDGAR*
ABS/TA	ABS borrowings scaled by *TA*, which is total assets plus debt in SPVs if ABS borrowings are off-balance financing.	*EDGAR; Compustat*
ABS_Size	The natural log of *ABS/TA*.	*EDGAR; Compustat*
Lmt/TA	The upper limit of ABS borrowings scaled by *TA*.	*EDGAR; Compustat*
(Lmt-ABS)/TA	The upper limit of ABS borrowings minus the actual amount of ABS borrowings scaled by *TA*.	*EDGAR; Compustat*
ABS/SPVA	The ratio of the upper limit of ABS borrowings to assets transferred to SPV.	*EDGAR*
Panel C: Other Variables		
Leverage	The book value of total debt scaled by total assets.	*Compustat*
Size	The natural log of total assets.	*Compustat*
ROA	The ratio of earnings before interest and taxes to total assets.	*Compustat*
Sales_Growth	Annual change in total sales.	*Compustat*
Age	The natural log of one plus the number of years in which a firm has accounting data in Compustat.	*Compustat*
Receivables	Account receivables scaled by total assets.	*Compustat*
Inventory	Inventory scaled by total assets.	*Compustat*
MTB	The ratio of the market value of equity to the book value of equity.	*Compustat*
Earnings	Earnings scaled by total assets.	*Compustat*
R&D	R&D expenses (zero if missing) scaled by total assets.	*Compustat*
Rating	An indicator variable that equals one if a firm has an S&P long-term domestic issuer credit rating in a fiscal year, and zero otherwise.	*Capital IQ*
Earnings_Range	The range of the quarterly *Earnings* during the two years before a fiscal year.	*Compustat*
Vega	The change in the dollar value of an executive's wealth for a 1% change in the annualized standard deviation of stock returns (Coles et al., 2006).	*CRSP; Execucomp*
Blockownerhsip	Ownership of institutional blockholders who hold more than 5% of a firm's shares outstanding.	*Thomson Financial 13F database*
Str_Cul	An indicator variable that takes the value of one if the sum of a firm's five cultural values is in the top quartile across all Compustat firms in a year, and zero otherwise.	*Li et al. (2021)*

LAW	An indicator variable that equals one if a firm's headquarter is located in Texas or Louisiana after 1997, Alabama after 2001, Delaware after 2002, South Dakota after 2003, Virginia after 2004, and Nevada after 2005, and 0 otherwise.	*Own search*
KZ	KZ index constructed by Kaplan and Zingales (1997).	*Compustat*
CF	Cash flow, defined as net income plus depreciation scaled by total fixed assets.	*Compustat*
$\sigma_{12/24/60\text{-month}}$	The standard deviation of stock returns over 12, 24, or 60 months after the year in which a firm uses ABS.	*CRSP*
σ_{CAPM}	The standard deviation of the residuals of the Capital Asset Pricing Model (CAPM), which is estimated based on daily stock data and over 12, 24, or 60 months after the year in which a firm uses ABS.	*Beta Suite*
σ_{FF3}	The standard deviation of the residuals from the Fama–French 3-factor model, which is estimated based on daily stock data and over 12, 24, or 60 months after the year in which a firm uses ABS.	*Beta Suite*
Capex	Growth in net gross plant, property, and equipment (PPEGT) scaled by total assets.	*Compustat*
Value-added	Operating income before depreciation and amortization plus labor expenses scaled by total assets.	*Compustat*
Tobin's Q	Total assets plus total market capitalization minus total ordinary equity, scaled by total assets.	*Compustat*
CapitalStock	Gross deflated plant, property, and equipment (PPEGT) scaled by total assets, following İmrohoroğlu and Tüzel (2014).	*Compustat*
Female	An indicator variable that equals one if a CEO is female, and zero otherwise.	*Execucomp*
Female_Ratio	The ratio of the number of female directors to the total number of board directors.	*BoardEx*
IMR	Inverse Mills ratio estimated in the first step of a Heckman regression.	