Special Purpose Vehicles and Nonfinancial Corporate Finance*

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Abstract

We present novel empirical evidence on the use of off-balance sheet financing by publicly-traded, U.S. nonfinancial firms. We find that about 5 percent of nonfinancial firms reported using a special purpose financing vehicle (SPV) to finance receivables in 2006. At the origination of the off-balance sheet financing program, firms experienced abnormal increases in stock prices on the order of 2 percent and experienced no change in bond prices. Compared with firms that do not use SPVs, users are larger in size, more likely to have access to internal and external financing, and have significantly more credit risk. However, users have less senior, secured bank debt in their capital structure; and nearly all users received explicit permission in a credit agreement to use off-balance sheet financing. The combined evidence suggests that off-balance sheet financing can reduce the cost of capital for a fairly unique set of firms that are relatively risky but do not rely on heavily on bank debt.

Securitization is a form of secured borrowing involving the transfer of assets to a special purpose vehicle (SPV) that finances the assets by issuing securities or another type of debt. According to the Securities Industry and Financial Markets Association, issuance of asset-backed securities nearly tripled between 2000 and 2006, before retreating sharply in 2007 and 2008 in the wake of the financial crisis. Although research on securitization markets has increased during this period, much of the existing empirical research relies on data from the asset-backed security (ABS) market. As we show below, securitization by nonfinancial corporations often involves a two-step process where assets are first sold to wholly-owned SPV and then subsequently sold to a financing conduit that purchases assets from several firms. Data from the ABS market misses the first stage in the process, since the originating nonfinancial firm never actually issues any asset-backed securities. We contribute to this literature by collecting data taken directly from nonfinancial firms annual statements, where firms disclose the extent to which they rely on off-balance sheet financing.[1]

We build a dataset with information on the use of special-purpose receivables financing subsidiaries for all publicly-traded, U.S. firms during fiscal year 2006. These SPVs are used to support receivables financing programs that provide on-going access to credit, much like a bank line of credit or a commercial paper program. In a typical transaction, the originating firm sells assets to the SPV, who in turn sells the assets to bank-sponsored financing conduit, who finances the purchase by issuing commercial paper. Since receivables liquidate fairly quickly, the program permits repeated selling and financing, with the relationship governed by a contract that specifies the terms of the financing. By comparing with Lemmon, Liu, and Mao (2010), who

[1] Lemmon, Liu, and Mao (2010) and Feng, Gramlich, Gupta (2009) also collect securitization and SPV data using SEC filings.

study all securitizations by nonfinancial firms, receivable financing programs account for at least three-quarters of all securitizations by nonfinancial firms.[2]

Using data available in footnotes to 10-K filings, we collect data on the existence of an SPV and a variety of details about the extent of off-balance sheet financing provided by the SPV. We capture information on the amount of financing provided, the potential amount of financing available, and several other variables related to how the firm accounts for the financing. The resulting dataset lets us document several facts related to the extent of off-balance sheet financing by nonfinancial firms and identify firm level characteristics that are related to the likelihood that a firm uses an SPV. We also use the sample of SPV-users as a starting point to identify some of the costs and benefits associated with off-balance sheet financing.

Our empirical exploration is based on extant theories that explain the use of collateralized borrowing and SPVs. In Myers (1977) classic paper on underinvestment in firms with risky debt, he points out that secured debt can minimize some of the agency problems related to unsecured debt. Securitization can be thought of as an extreme form of secured borrowing, as creditors' claims on the SPV are backed exclusively by the assets of the SPV and unrelated to the originating firm. This limits any subsidy that might accrue to the firm's original creditors and can alleviate the underinvestment problem. If SPVs provide a means to limit financial

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[2] Disclosure provides an additional motivation to focus on receivables financing programs. Since receivables financing programs provide a continuing source of funds, firms are likely to report details of the program because SEC Regulation S-K mandates discussion of firms' liquidity and capital resources. Anecdotal evidence suggests that alternative types of securitization come in two varieties. First, the financing subsidiaries of nonfinancial firms (e.g. Ford Motor Credit, Caterpillar Financial) create asset-backed securities to finance consumer credit such as car loans or credit cards. Second, nonfinancial firms occasionally securitize long-term assets that are incidental to their primary business.

constraints, we would expect to SPV usage concentrated in firms with high financing needs or limited access to credit markets.

More recently, Gorton and Souleles (2006) and Ayotte and Gaon (2010) highlight why off-balance sheet financing can reduce costs associated with bankruptcy. By structuring the SPV to be "bankruptcy-remote," a Chapter 11 filing by the originating firm should have no impact on the assets in the SPV. If there are deadweight costs associated with bankruptcy, Gorton and Souleles (2006) show that the SPV creates value by minimizing these costs. Ayotte and Gaon (2010) show that separating the creditors of the SPV from the originating firm can limit expropriation in bankruptcy, as can happen through debtor-in-possession financing that primes existing debt. Both theories predict that firms with more credit risk should be more likely to use SPVs, since expected bankruptcy costs are higher in riskier firms.

According to our data, relatively few firms used an SPV to finance receivables in 2006; however, usage is strongly correlated with several firm characteristics. Only 5 percent of firms report using an SPV to facilitate off-balance sheet financing, but usage is concentrated in firms with relatively high credit risk and little evidence of being financially constrained. SPV-users are quite large, have credit ratings, are slightly older than average, and have a lower market-to-book ratio, which Hadlock and Pierce (2010) show are characteristics of firms least likely to be financially constrained. SPV-users are also much more risky than average, according to several measures of credit quality. For example, compared with a firm with a high investment grade rating (A or above), a low speculative-grade (BB-rated) firm is nearly twice as likely to use an SPV.

Our second set of results measures the valuation impact for firms using an SPV. We conduct an event-study around the origination of the off-balance sheet financing program that led

to the creation of the SPV. By using SEC filings to track the history of the program, we are able to identify the exact date the program was created for the majority of the SPV-users in our sample. We examine both stock and bond returns around the origination date and find a significant increase in firm value associated with the creation of the program. In the 7-day window around the start of the program, we find a statistically significant increase in stock prices of 1% to 3% and no effect on bond prices. These positive abnormal returns persist for at least one month following the origination date.

In our final set of results, we provide some evidence on why SPV use is not more widespread. We begin by examining the credit agreements of the firms we identify as using an SPV and show that existing lenders are aware of and can limit the use of an SPV. Specifically, we document that nearly all of the agreements explicitly permit the off-balance sheet financing program that we identify, which would otherwise be prohibited. Restrictive covenants that prohibit asset sales, the granting of liens, the creation of debt, and certain types of investment can be used to limit the creation of an SPV to facilitate off-balance sheet financing. Without being given explicit permission, these firms would not be able to use the SPV we observe. Next, we show that SPV-users have less bank debt and less secured debt on their balance sheets as compared with similar firms. We conclude that many firms with relatively high credit risk are prohibited from using off-balance sheet financing because their senior, secured, bank lenders contractually forbid it.

Our analysis is most related to the work of Minton, Opler and Stanton (1997) and Lemmon, Liu, and Mao (2010), who both study securitization by nonfinancial firms. Minton, Opler, and Stanton (1997) collect data on issuance of asset-backed securities sponsored by nonfinancial firms between 1985 and 1995 and find that ABS-issuers tend to be relatively large

and riskier than average. This relationship holds true in our more recent sample period using data constructed from a very different source, suggesting a very robust relationship. Lemmon, Liu, and Mao (2010) collect data from SEC filings, resulting in a dataset very similar to ours, with two important distinctions. First, they collect data on all types of securitizations, not just receivables programs. We view our sample as more homogeneous, but their sample provides broader coverage. As stated above, the overlap is quite large. Second, they collect data on usage for all years between 1994 and 2007, which permits time series analysis that we cannot do with our purely cross-sectional dataset.[3] Like us, Lemmon, Liu, and Mao (2010) examine the correlation between firm characteristics and securitization usage. Although they focus on some different characteristics, they also find securitization-users are large and relatively risky. The advantage of their time series data is that they can examine changes in firm characteristics around the use of securitization. They find that firms increase their total leverage, including the securitization financing, suggesting that securitization reduces the total cost of debt, which corroborates our finding on the valuation impact.

The combined evidence suggests that off-balance sheet financing provides a useful source of financing for a relatively unique type of firm. First, a firm needs to be fairly large with an abundance of receivables to support the creation of an SPV. Second, the firm is likely to have a fair degree of credit risk, as very safe firms choose to finance assets on-balance sheet through traditional debt sources. Third, the firm is likely to have relatively stable cash flows and asset

[3] For two reasons, we do not see our purely cross-sectional analysis as limiting. First, since financing arrangements have a stated maturity and are frequently cancelled or renegotiated, the choice of a firm to have an SPV in 2006 primarily reflects the contemporaneous characteristics of the firm rather than the consequence of past choices. Second, we are interested only in identifying correlations between firm characteristics and usage of an SPV and are agnostic on the source of the correlation, which may include factors that do not vary over time.

values and unlikely to require new financing to support growth. Finally, the firm needs to rely relatively less on senior, secured bank loans. The intersection of these factors results in very few firms finding off-balance sheet financing as economically viable. This explains why, according to our data, only 1 in 20 publicly-traded nonfinancial firms use an SPV to finance receivables.

We interpret these results as suggesting there are costs and benefits associated with off-balance sheet financing. The benefits appear tied to the value created by segmenting assets and/or liabilities from a potential bankruptcy of the originating firm. As the likelihood of a bankruptcy increases, these benefits increase and we see more SPV usage. The costs of securitization appear related to the ability to grant on-balance sheet senior, secured debt, which is usually held by a bank. Given that firms with higher credit risk are much more likely to tranche their debt into pieces that include a senior, secured bank loan (Rauh and Sufi (2010)), many firms that might benefit from securitization find the costs prohibitively high. In practice, loan covenants are the means by which creditors prohibit their borrowers from creating an SPV.

The rest of the paper is organized as follows. Section I provides some background on SPVs, describes our data collection process, and provides some summary statistics. Section II discusses some existing theoretical background that influences our empirical work. Section III describes the relationship between firm characteristics and the use of an SPV. Section IV presents the results of the event study, and Section V provides some evidence on factors that limit the use of SPVs. Section VI concludes.

I. Background and Data Collection

A. SPVs and Off-Balance Sheet Financing

We draw a distinction between a firm financing assets "on-balance sheet" and "off-balance sheet." The distinguishing feature of off-balance sheet financing is the creation of a separately capitalized subsidiary for the sole purpose purchasing and warehousing assets. The process begins with the originating firm creating a wholly-owned, limited purpose, special-purpose vehicle (SPV) whose sole purpose is to purchase assets from the originating firm. The SPV finances the purchase partly with debt that does not have recourse to the originating firm and partly with a residual interest claim held by the originating firm. In exchange for cash and the residual interest claim, the originating firm transfers legal ownership the assets to the SPV. The structure of the financing offers the creditors of the SPV first priority on the SPVs assets and little to no exposure to the risk of the originating firm.[4]

In practice, the SPV can be financed in a variety of ways, including issuance of asset-backed securities, asset-backed commercial paper, and loans from a bank. The term "securitization" typically refers to the financing of the SPV with securities. Although some off-balance sheet financing is accomplished through securitization, we do not restrict attention to cases where the SPV issues securities.[5] Instead, we focus on the decision to set up a SPV and

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[4] Several papers have explored the question of whether the SPV is truly bankruptcy-remote. Gorton and Souleles (2006) and Higgins, Mason, and Mordel (2009) provide some evidence that the creditors of the SPV appear sensitive to the credit risk of the originating firm, suggesting some implicit recourse. Similarly, Niu and Richardson (2006) and Landsman, Peasnell, and Shakespeare (2008) find that, on average, investors in the originating firm treat off-balance sheet debt identically to on-balance sheet debt.

[5] As discussed below, this is why we collect our data directly from firms' SEC filings. Securities issuance databases, such as Securities Data Corporation, will not capture receivables securitization programs that are finance through asset-backed commercial paper.

finance some assets separately from the originating firm. As discussed in Gorton and Souleles (2006), the primary goal of securitization is to separate the credit risk of the originating firm from the credit risk of the SPV, which is accomplished by legally transferring the assets off the balance sheet of the originating firm. This holds true even if the SPV is financed by a bank loan or commercial paper, which is the case for the majority of our sample firms.

We focus on the financing of receivables by nonfinancial firms, which includes primarily accounts receivables, but in some cases lease receivables or other receivables. The typical transaction works very much like a revolving line of credit; the SPV is permitted to continually finance assets up to a pre-specified limit, under fixed terms, for a fixed maturity. In many cases, the SPV has a receivables purchase agreement (RPA) with an asset-backed commercial paper (ABCP) conduit that permits the SPV to sell an ownership interest in the SPV's assets.[6] The ABCP conduit purchases ownership interests from a variety of SPVs and finances the purchase largely with issuance of commercial paper. As shown on the Federal Reserve Board's website, outstanding ABCP reached nearly $1 trillion by the end of 2006.[7]

For the originating firm, a receivables financing program permits the sale of a pool of receivables to a SPV. The transaction is usually structured as a "true sale," meaning that the originating firm loses direct access to the receivables beyond any residual ownership interest. The RPA is the contract that governs the ultimate nature of the financing available to the originator. It outlines the maximum amount of receivables that can be sold to the ABCP conduit,

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[6] See Moody's Investor Service (2003) and Fitch (2001) for a description of the Asset-Backed Commercial Paper market.

[7] See http://www.federalreserve.gov/releases/cp/default.htm. As discussed in Covitz, Liang, and Suarez (2009), most ABCP finances financial assets, as opposed to the nonfinancial firms we study here.

the exact nature of the receivables eligible for financing, and any other conditions placed on the originator. Receivables purchase agreements are most akin to bank loan contracts in the nature of the details outlined in the contract; affirmative and negative covenants are common in RPA agreements. The RPA will often require that value of the assets transferred to the SPV is far greater than the ownership interest sold to the ABCP conduit, which could leave the originator with a substantial residual ownership interest in the SPV.

As an example, consider the following excerpt from Raytheon Company's 2006 10-K filing:

> "In 2006, we sold $67 million of general aviation finance receivables to a qualifying special purpose entity (QSPE) which in turn issued beneficial interests in these receivables to a commercial paper conduit, and retained a subordinated interest in and servicing rights to the receivables. The sale was non-recourse to us … At December 31, 2006 …, the outstanding balance of securitized accounts receivable held by the third party conduit totaled $173 million …, of which our subordinated retained interest was $60 million….
>
> The assets of the QSPE are not available to pay the claims of the Company or any other entity….We retained responsibility for the collection and administration of receivables. We continue to service the sold receivables and charge the third party conduit a monthly servicing fee at market rates."

This passage highlights several important economic and accounting issues related to off-balance sheet financings. First, Raytheon asserts that the assets transferred to the SPV are unavailable to the creditors of Raytheon. Raytheon's creditors, however, do have access to the residual interest in the SPV, meaning that once the SPV's creditors are repaid, Raytheon receives the remainder. As of year-end 2006, Raytheon had received $113 million of financing through the securitization and had a $60 million residual interest in the SPV. In terms of accounting, Raytheon removed the entire $173 million of receivables from its balance sheet but included the $60 million retained interest as an asset, recorded as a receivable. Of course, Raytheon received

roughly $113 million in cash from the SPV from the sale of the beneficial interest to the commercial paper conduit.[8]

It is instructive to compare the off-balance sheet transaction with the alternative of on-balance sheet secured borrowing. For Raytheon, this would mean leaving the entire $173 million of receivables on the balance sheet and obtaining a $113 million loan collateralized by the receivables. This would increase Raytheon's assets and debt each by $113 million as compared with the off-balance sheet transaction. Raytheon's secured lenders would be more exposed to the credit risk of Raytheon as a whole, and in the event of a bankruptcy, the secured lenders would be a participant in the Chapter 11 workout.

With the securitization transaction, the retained interest is a form of credit support to the creditors of the SPV. As discussed in Niu and Richardson (2006), the retained interest is a form of over-collateralization that helps support the securitization program. The originating firm takes a first loss position in the receivables, absorbing any losses on the underlying receivables before the creditors of the SPV. Compared with leaving the assets on the balance sheet, the securitization creates a leveraged exposure to the underlying receivables.

The accounting and disclosure of off-balance sheet financing was changed significantly in 2000 by the *Statement of Financial Accounting Standards No. 140* (SFAS 140). SFAS 140 clarified the conditions under which off-balance sheet financing should be accounted for as a true sale or not.[9] If the transaction does not qualify as a true sale, the SPV must be fully consolidated on the balance sheet of the originating firm. If the transaction does qualify as a true sale, the

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[8] The sale price was likely less than $113 million, with the difference reflecting the cost of financing.

[9] See Financial Accounting Standards Board (2000) and Financial Accounting Standards Board (2003.

originating firm need only account for any retained interest in the SPV. Lemmon, Liu, and Mao (2010) address the impact of accounting consolidation and SFAS 140 on the nature of off-balance sheet financing. For our purposes, we track the accounting treatment of SPVs only so we can properly adjust accounting variables to be consistent across firms; for any firm not consolidating the SPV, we adjust all accounting variables to be as if the SPV were consolidated. We do this to facilitate comparisons across firms so that we can focus on the economic benefits to the originating firm of creating an SPV and financing assets off-balance sheet.

B. Data

Our goal is to identify a sample of nonfinancial firms that use SPVs to finance assets off-balance sheet. We begin with the universe of U.S. nonfinancial parent companies (*fic*="USA", *sic* outside of 6000 to 6999, *stko*=1 or 3) with available data in Compustat during fiscal year 2006. We require the firm to have usable data on a variety of accounting variables, including total assets and the lagged value of total assets, receivables, total liabilities, sales, operating income, capital expenditures, R&D expenses, interest expense, share price, and shares outstanding. We then find the intersection of this data and the dataset of 10-K filings matched to Compustat observations provided in Nini, Sufi and Smith (2009). The merge is nearly complete and leaves us with 2,503 firms with complete Compustat data and the ability to search 10-K filings to augment the Compustat data with hand-collected data on use of SPVs.

We begin by downloading all of the 10-K filings and converting all html code to text. We then search the text files for evidence that the firm finances receivables through an SPV, using an iterative process to completely eliminate false-positives and minimize false-negatives. We start by searching for keywords suggesting that the firm uses an SPV and then read the text surrounding the keywords to correctly classify the firm as a user or not. We choose a broad set

of keywords to minimize the frequency of firms that we misclassify as not using securitization (false negatives). Our reading of the actual text eliminates firms that the automated procedure incorrectly classifies as using an SPV (false positives). After a bit of experimentation, we settled on searching for the following phrases within 100 words of the word "receivable*": "securitize*", "special purpose", "off-balance sheet", "undivided interest", "purchase program", and "variable interest entity", where "*" denotes a wildcard that could be any set of characters before a whitespace. Our search program returns the 10 lines of text before and after the occurrence of a keyword, which lets us fairly easily examine and remove any false positives. Although we cannot rule out that we missed some firms that actually use an SPV to finance receivables, we believe such errors are very rare. In the most rigorous of our robustness checks, we matched all of our identified firms to another firm of from the same industry (3-digit SIC code) of similar size and read the entire filing of the matched firm. In no instance did we find that the firm reported that it used an SPV to finance receivables.[10]

As an example of the nature of the disclosure found in 10-K filings, consider this excerpt from the footnotes from ArvinMeritor Inc.'s 2006 10-K.

> "The company also participates in a U.S. accounts receivable securitization program to enhance financial flexibility and lower interest costs. Under this $250 million program, which was established in September 2005, and amended in fiscal year 2006, the company sells substantially all of the trade receivables of certain U.S. subsidiaries to ArvinMeritor Receivables Corporation (ARC), a wholly-owned, special purpose subsidiary. ARC funds these purchases with borrowings under a loan agreement with a bank. Amounts outstanding under this agreement are collateralized by eligible receivables purchased by ARC and are reported as short-term debt in the consolidated balance sheet (see Note 16). As of September 30, 2006 and 2005, the company had utilized $40 million and $112

[10] In fact, in no case did we find evidence that the matched firms use an SPV to finance any types of assets.

> million, respectively, of this accounts receivable securitization facility. Borrowings under this arrangement are collateralized by approximately $384 million of receivables held at ARC at September 30, 2006. If certain receivables performance-based covenants are not met, it would constitute a termination event, which, at the option of the banks, could result in termination of the accounts receivable securitization arrangement. At September 30, 2006, the company was in compliance with all covenants."

For each SPV-user, we collect information about the size of the potential financing available under the facility ($250 million in the ArvinMeritor example), the amount of actual financing provided by the facility as of the balance sheet date ($40 million), the amount of retained interest ($344 million), and whether the transaction is consolidated on the balance sheet for accounting purposes (for ArvinMeritor, consolidated).

C. Summary Statistics

Using this procedure, we identify 108 firms as users of an SPV in 2006. Table AI in the Appendix provides a complete list of all 108 firms, along with the limit of the facility and some other information about the sample. As discussed further in section IV, we use prior SEC filings to identify the date the firm first initiated the receivables financing program, and we successfully find this date for 86 of the 108 SPV-users. We also download from SEC filings any credit agreements governing bank loans that would have been in place as of year-end 2006; we find such an agreement for 102 of the 108 firms.

Table I provides summary statistics on the usage of financing SPVs for our full sample of Compustat firms for just the 2006 fiscal year. In this sample, 4.3 percent of firms report using an SPV to finance receivables. Excluding the roughly 20 percent of firms that do not use any debt financing slightly raises the fraction of nonfinancial firms using SPVs to 5.4 percent.

The remainder of Table I shows the fraction of SPV-users within various subsets of firms. Use of off-balance sheet financing varies most significantly by the size of the firm. Firms with under $100 million in assets do not use SPVs, and only 1 percent of firms with assets less than $1 billion use SPVs. Within the largest firms, however, off-balance sheet financing is fairly common. Among the largest firms with more than $5 billion in assets, more than one-fifth of the firms report using an SPV in 2006. Use of SPVs also varies by industry, with firms in manufacturing and production of consumer durables relatively heavy users. This in part reflects the large amount of receivables generated by these firms, reflecting the financing needs of their customers. This is also evident when we split the sample by the amount of receivables reported on the firm's balance sheet. Not surprisingly, firms with few receivables use SPVs to finance receivables less often.[11]

Table I also highlights the relevance of access to alternative sources of finance. Firms with no S&P credit rating use SPVs the least, and firms with both a short-term and long-term rating use SPVs the most. Firms with both ratings likely have access to both public long-term debt markets and short-term commercial paper markets. We conclude from these summary statistics that off-balance sheet financing is not reserved for small firms without access to public debt or commercial paper markets; rather, securitization appears to be an alternative source of funds for large, well-known firms that already have established credit records.

Table II provides summary statistics on the extent of off-balance sheet financing provided by SPVs for firms that actually use SPVs. The average facility provides for potential financing

[11] The reported summary statistics are quite consistent with those reported in Lemmon, Liu, and Mao (2010), whose data spans more years and types of securitizations.

up to 45 percent of the firm's existing assets. However, on average, firms only use 53 percent of the available financing, which provides 14 percent of total debt financing for these firms.[12]

D. Matched Sample

In order to facilitate a comparison of SPV-users and non-users, we build a sample of firms similar to our SPV-users that we confirm did not use an SPV in 2006. Given the importance of firm size identified in Table I, we form the matched sample based on industry and firm size. For each SPV-using firm, we find a non-using firm in the same Fama-French industry that is closest in size, based on total assets. To ensure a more appropriate control group, we require the matched firms to have some debt outstanding and a ratio of receivables to total assets above 5%. With all of these restrictions, we are able to find a unique match for 104 of the 108 firms. The four firms without a unique match are all from the same industry; in 2006, this industry had eight firms, of which six used an SPV and the other two serve as control firms. For each of these matched firms, we read their entire 2006 10-Ks to confirm that they did not use an SPV. The lack of false positives in the matched sample is the basis for our claim that the false positive rate is likely quite low in the larger sample. In our empirical analysis below, we make comparisons between SPV-users and non-users using both the full sample of 2,503 firms and the smaller sample of 212 firms comprised of the SPV-users and their matched counterparts.

II. Theoretical Background

In this section, we discuss existing research to motivate our subsequent empirical analysis. The unifying theme is that the bankruptcy-remote nature of the SPV separates the

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[12] All of these numbers have been adjusted to account for the off-balance sheet accounting used by most firms.

credit risk of the SPV from the credit risk of the originating firm. This structure can create value by alleviating some financial frictions associated with debt financing.

Stone and Zissu (1997) present a practitioners view on why firms choose to securitize receivables. They propose that firms can gain access lower cost funding, support new investment, and diversify their sources of debt financing. Of course, since Modigliani and Miller (1958) first propagated the idea that the value of a firm is not dependent on its capital structure, it is not obvious why securitization might result in a lower cost of capital.

Off-balance sheet financing can be thought of as a unique form of secured borrowing, because the collateral is held within a bankruptcy remote subsidiary that enhances the security of the collateral. Myers (1977) sets the groundwork for exploring the usefulness of secured financing to overcome problems of debt overhang, which is explored further in Stulz and Johnson (1985). In the terminology of Myers (1977), unsecured debt is backed by both "assets-in-place" and the "real options" that represent future growth opportunities for a firm, which makes it riskier and more sensitive to private information than secured debt, which is backed by only the assets in place. When existing debt is sufficiently risky, "debt overhang" may prevent a firm from investing in a positive NPV project because many of the gains from new financing accrue largely to existing creditors. Secured debt, and off-balance sheet financing, can mitigate this problem by separating the collateral assets from the rest of the firm, which prevents existing creditors from benefiting from the new financing. The benefit to the firm is lower cost financing and additional investment in positive NPV projects. Under this view of off-balance sheet financing, we would expect to see financially constrained firms with limited access to on balance sheet financing as heavy users of SPVs.

Gorton and Souleles (2006) and Ayotte and Gaon (2010) highlight why off-balance sheet financing can reduce costs associated with financial distress. By separating certain assets into the SPV, Gorton and Souleles (2006) show that securitization can reduce the total deadweight costs of financial distress, since fewer assets managed by the firm would be subject to bankruptcy proceedings. Since even highly collateralized on-balance sheet debt claims are subject to bankruptcy costs created through the automatic stay, attorney fees, and other economic costs, securitization can results in a lower cost of capital for firms that face high expected bankruptcy costs. Ayotte and Gaon (2010) show that securitization can limit inefficient continuation following a bankruptcy reorganization. Since debtor-in-possession (DIP) financing receives special priority status in a reorganized firm, the ability to subjugate existing claims creates a bias towards excessive continuation. By removing assets off the balance sheet of the originating firm, securitization can limit this possibility and result in a lower cost of capital. This effect is particularly strong for assets that are not essential to running the business, such as accounts receivable. Ayotte and Gaon (2010) use their model to explain the securitization of accounts receivable rather than other types of assets.

Leland (2007) provides a model of capital structure that can be used to explain securitization and off-balance sheet financing. By creating a separately capitalized firm, off-balance sheet financing provides an extra degree of freedom to trade off the costs and benefits of debt financing. Because the leverage of the SPV can be different than the leverage of the originating firm, the tax benefits of debt and expected costs of financial distress will vary across the two entities, permitting a more optimal tradeoff. Leland (2007) shows that this effect is largest when the assets of the SPV are very different than the assets remaining on the balance

sheet of the originating firm. Lemmon, Liu, and Mao (2010) pursue further the implications of the Leland (2007) model for securitization.

III. Determinants of Securitization Users

In this section, we identify the firm characteristics that are correlated with usage of an SPV. We first present a simple univariate comparison with the matched sample and then estimate a multivariate model using the broader set of non-users. Our choice of firm characteristics is based both on the theory provided above and the desire to provide a range of facts in the data. Table AII in the Appendix provides a list of all variables and a description of how the variables are constructed.

Our firm characteristic variables can be broadly categorized into two sets. First, we investigate several variables meant to capture a firm's desire and ability to access external credit markets. We include an indicator that the firm has a short-term S&P credit rating, which is a necessary condition for the firm to issue commercial paper. We also include an indicator that the firm has a long-term S&P credit rating, which will be highly correlated with the ability to access public bond markets. Faulkender and Peterson (2006) show that a credit rating increases the supply of external finance available to firms. We also include a measure of the current level of investment (capital expenditures plus research and development expenditures) and the market-to-book ratio and as a measure of growth opportunities. Finally, we include the natural logarithm of the age of the firm, which combined with the size of the firm, provide a useful proxy for constraints on external finance. Hadlock and Pierce (2010) show that larger and older firms are less likely to report being financially constrained in their annual statements.

Our second set of variables capture the credit quality of the firm. We begin with a set of dummy variables for firms' long-term credit ratings from S&P. We then add book leverage (the

ratio of total debt to assets), the current ratio (the ratio of current assets to current liabilities), and a measure of the cost of credit (the ratio of interest expense to total liabilities). Higher leverage and interest expense suggest a riskier firm, and a higher current ratio suggests lower credit risk. We winsorize all ratios at the 1st and 99th percentiles of the respective distributions and report summary statistics in Table III.

A. Matched Sample Comparison

Table IV presents a comparison of SPV-users and their matched non-users. Since we match on firm size, there is no difference in average size across the two groups. Similarly, the firms are of similar age and have largely similar quantities of receivables on their balance sheets. We view the matching process as creating a useful set of control firms.

Five variables show statistically significant and economically important differences. First, SPV-users have a lower market-to-book ratio and lower profitability, suggesting fewer growth opportunities and possibilities to expand. Second, SPV-users carry significantly more credit risk than their non-using counterparts. By all three measures, SPV-users are considerably more risky. Perhaps this is most easily seen in the distribution of credit ratings in the two groups: SPV-users are one-half as likely to be rated A or above and about one-third more likely to be rated BB or B. The differences in means across the groups are not big as compared with the sample wide distributions reported in Table III; but in unreported results, we confirm that the many of the differences are in the neighborhood of one-half of a standard deviation of the distributions conditional on industry and firm size, our two matching characteristics.

B. Multivariate Comparison

Tables V and VI present estimates of a simple empirical model that identifies conditional correlations between firm characteristics and usage of an SPV. The primary dependent variable

is an indicator that the firm uses an SPV, and we estimate the conditional correlations of firm characteristics on the probability that a firm uses an SPV with a standard probit model. Since so few firms use an SPV, we focus only on the decision to use securitization rather than the extent of financing provided through the SPV.[13] Of course, as highlighted in Table II, firms that use an SPV obtain a significant amount of financing through their facilities.

Given the importance of industry, firm size, and receivables identified in Table I, all regressions include as controls the natural log of book assets, the square of this variable, industry dummy variables based on the Fama-French 38 industry classification of 4-digit SIC codes, and the ratio of receivables to total assets . The probit models are estimated by maximum likelihood and include a variety of specifications. Table V explores the impact of financing needs and constraints, and Table VI adds measures of credit quality.

As shown in Table V, firm size and use of receivables are strongly related to the likelihood that a firm uses securitization. In all specifications, firm size (measured by the log of firm assets) has an increasing and concave relationship with the probability that a firm uses an SPV. Not surprisingly, the share of receivables on the firm's balance sheet is positively related to the probability that a firm uses an SPV to finance receivables.

Our measures financing needs and constraints suggest that SPV-users are not financially constrained and less likely to need external financing. Although the presence of a short-term credit rating is negatively related to SPV usage, a long-term rating is positively correlated with usage. Given the Faulkender and Peterson (2006) result that firms with long-term credit ratings have more access to external credit, SPV-users do not appear limited in their ability to access

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[13] Lemmon, Liu, and Mao (2010) examine the relationship between the extent of securitization and firm characteristics and find very few significant correlations.

alternative sources of credit, such as bank loans or bonds. Firm age shows a positive relationship with SPV-usage, although the coefficient is estimated with substantial error. Combined with the strong positive impact of firm size and the Hadlock and Pierce (2010) result that larger and older firms are less likely to report being financially constrained, there is no evidence that SPV-users are likely to be financially constrained. Finally, the market-to-book (MTB) ratio shows a strong negative relationship with SPV use. A one standard deviation change in MTB ratio results in a 5.0 percentage point change in the estimated probability of SPV use, which is a near doubling of the unconditional probability.[14] Given the result in Sufi (2007) that low market-to-book ratio firms are more likely to use debt and have access to a line of credit, we again conclude that SPV-users are not financially constrained. Rather, the evidence suggests that SPV-users have ample access to credit and limited need for external funds.

Table VI explores the impact of firm credit quality by adding various measures of firm credit quality to the probit model. In column (1), we see that, compared with an unrated firm, high investment-grade rated firms (A or better) are less likely to use securitization and low speculative-grade firms (CCC) are much more likely. Moving from a moving from a rating of A to a rating of CCC increases the estimated likelihood of using an SPV from 2.7 percent to 11.1 percent; an 8.4 percentage point effect is more than a doubling of the unconditional probability.

The balance sheet ratios entered in columns (2) – (5) also confirm that firms with more credit risk are more likely to use securitization. Using specification (5), a one standard deviation increase in the current ratio results in an 8.9 percentage point decrease in the estimated

[14] All marginal effects are computed by fixing all explanatory variables at their sample means and varying the variable of interest from one-half of a standard deviation below the sample mean to one-half of a standard deviation above the sample mean.

probability of SPV usage; a one standard deviation increase in the ratio of interest expense to liabilities results in a 2.6 percentage point increase in the estimated probability. Given the low unconditional probability of SPV use, the marginal impact of changes in credit quality are very big. The combined results of Table VI show that SPV-users tend to relatively risky, with peak usage happening for firms towards the bottom of the credit quality distribution. Importantly, the impact of firm size, age, ratings, and MTB remain very similar in Tables V and VI, meaning that controlling for credit quality does not change the conclusions we drawn about the impact of financial constraints.

IV. Valuation Impact of SPV Usage

The results in Section III suggest that firms use SPVs strategically, with very specific types of firms choosing this form of financing. In this section we explore the impact of SPV usage on the valuation of originating firms' equity and debt securities. We perform standard event studies around the creation of an SPV, using data on original contract dates culled from SEC filings. We examine short-run abnormal stock and bond returns for the subset of our 108 SPV-using firms that had publicly-traded stock or bonds at the time the SPV was initially created.

Theory suggests that SPVs help firms reduce their cost of capital, which should benefit equity-holders. Moreover, managers should make decisions to maximize shareholder value, leading us to expect that observed managerial decisions should lead to positive stock returns. However, an abundance of existing empirical work shows that announcements of new financings typically result in negative short-run abnormal stock returns. Eckbo, Masulis, and Oyvind (2007) summarize the evidence and show that, other than for bank loans, short-run abnormal stock returns are zero or negative, on average, around the announcement of new financing.

Likewise, Higgins, Mason, and Mordel (2009) show that banks tend to experience negative abnormal returns around the announcements of their first issuance of asset-backed securities.[15]

We also examine returns to bondholders around the initiation of the SPV. Since off-balance sheet financing adds leverage to the firm and removes assets from the originating firm in exchange for cash, the transaction may simply be a means to transfer wealth from existing bondholders. We view the bond return event study as necessary to fully understand the nature and source of any valuation effects. Lemmon, Liu, and Mao (2010) compare yield spreads on bonds and loans issued before and after firms begin to use securitization and find that the cost of debt increases. We view our short-run event study on outstanding bonds to be the more appropriate means to identify the valuation impact since we do not have to control for any changes in non-price terms of the debt and can focus on a window in time likely uncontaminated by large releases of additional information.

A. Data Collection

For each of the 108 firms that we identify as using an SPV in 2006, we search through prior SEC filings to identify the date that the firm originated the program. We first identify the fiscal year of origination by searching through each previous 10-K filing until we find a 10-K that does not mention any form of off-balance sheet financing. In some cases, the initial 10-K filing will identify the exact date the program was started, or have attached the RPA agreement as an exhibit to the filing, which we use to identify the origination date. [16] In the event that the

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[15] Higgins, Mason, and Mordel (2009) also examine stock returns for nonfinancial firms issuing asset-backed securities and find negative, but statistically insignificant, average abnormal returns.

[16] RPA agreements that govern the financing transaction typically have a maturity of 2 to 4 years, at which point the agreement would need to be renegotiated. Of course, the agreement may be renegotiated

10-K does not contain this information, we search 10-Q and 8-K filings for the original initiation date.

We identify the initial contract date for 86 of the 108 firms in our sample. For the remaining 22 firms in our sample, there are three primary reasons that we fail to identify the exact date. For some firms, the origination date precedes 1996, the year when SEC filings became readily available through the SECs EDGAR system. For such firms, we know that they used off-balance sheet financing in 1996 but do not track back any further to identify the original date. A second common reason is that firms do not disclose the RPA agreement and report only the calendar-quarter or calendar-month that the program was started. For these firms, we do now know the exact day that the program started. A final reason is that the program appears to have started prior to 2000 (but after 1996), before SFAS 140 clarified disclosure related to off-balance sheet financing. Such firms report detailed information subsequent to 2001 but not enough information in prior years to learn the exact date the program started. We do not view any of these reasons as creating a selected sample of firms likely to experience good or bad news associated with the announcement of an SPV.[17]

B. Stock Return Event Study

For each of the 86 firms for which we have the exact date the program started, we conduct a standard stock price event study using the method of Brown and Warner (1985).[18] We

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during the life of the contract. In the data collection process, our goal is to identify the date of the original initiation of off-balance sheet financing, not a renegotiation of an existing program.

[17] We do confirm that our event study results are not confined to programs beginning prior to 2000, when disclosure was more optional. During the period 1996-2000, firms choosing to disclose might be a select sample of firms where the announcement is good news.

[18] We conduct the stock price event study using the Eventus ® software available in Wharton Research Data Services.

define the event day as the origination date of the contract governing the transaction and examine abnormal stock returns in the days around the event. We begin by estimating the parameters of a single-factor and three-factor market model for each firm's stock return during a 210 day window before the event that ends 46 days before the event. Based on the estimated market model, we compute expected returns using the realized returns on the factors and compute abnormal returns as the difference between actual returns and expected returns. We cumulate returns over various windows to produce cumulative abnormal returns (CAR) for each stock in the sample. Since we do not know the exact day the information about the financing was made public, we examine various windows around the event date.

The results of the stock return event study are presented in Table VII and Figure 1. We use only 80 stocks in our analysis because six firms became publicly-traded after initiating their program. Figure 2 plots cumulative mean abnormal returns based on both market models for the 61 day window centered on the event date.[19] In the 30 days preceding the event, cumulative mean abnormal returns are very close to zero. Indeed, as shown in the top row of Table VII, mean and median CARs are not significantly different from zero over the window from -30 to -2.

Beginning right around the event date, average abnormal returns move sharply positive, as shown in Figure 2. The bottom three row of Table VII show mean and median CARs for three windows beginning on day -1 and ending on day +1, +5, and +30. Mean and median CARs during the 7-day window from -1 to 5 range from 1.61% to 3.54%, and all four estimates are significantly different from zero at the 1% level. Abnormal returns over the smaller 3-day

[19] Figure 2 is constructed by computing average abnormal returns on each day and cumulating the averages over the 61 day window. Table VII reports mean and median cumulative abnormal returns, meaning abnormal returns are cumulated before averaging.

window from -1 to +1 are about one-half as large as the 7-day abnormal returns but still significantly different from zero at the 10% level.[20] As shown in Figure 2 and the bottom row of Table VII, abnormal returns are not reversed in the weeks after the initial positive abnormal returns. At least through one month following the initiation of an off-balance sheet financing program, equity investors viewed the news as positive and bid up the value of the average stock by 1 to 3 percent on average.

C. Bond Return Event Study

We also conduct an event study for corporate bond prices around the initiation of the program, using the guidance provided by Bessembinder, Kahle, Maxwell, and Xu (2009). We begin by collecting daily bond quotes from *Datastream*, who gather the data from Merrill Lynch bond dealers. The daily frequency is very useful since it increases the power of our tests (as suggested by Bessembinder, Kahle, Maxwell, and Xu (2009)), but an important disadvantage of the data is that we use quotes rather than actual transaction prices. However, since we examine a fairly wide window around the event date - which we do because we do not know the exact announcement date - we are not particularly concerned about stale quotes.[21] We are able to find quoted prices around announcement dates for 103 non-convertible bonds related to 40 firms.[22] We search Datastream using firms' 6-digit CUSIPs and names taken from *Compustat*. We are confident that we do not have any incorrect matches.

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[20] Reported results are based on two-sided tests.

[21] The two alternative data sources that provide transaction prices on bonds are inadequate for our purposes. The Lehman Brothers Bond Database provides only a monthly frequency, and TRACE did not cover below investment-grade bonds until 2004, after many of our announcement dates.

[22] We do include callable bonds since many bonds contain a call feature. We exclude the few convertible bonds issued by firms in our sample.

We report both actual returns and abnormal returns, which we construct using clean, non-matrix prices. As in Bessembinder, Kahle, Maxwell, and Xu (2009), we compute abnormal returns as the difference between actual returns and the return on an index with similar credit risk and time-to-maturity. We use six indexes provided by Lehman Brothers: short-, medium- and long-term maturity for each of investment-grade and a below investment-grade.[23] For each time horizon, we first compute returns for each bond and then compute the un-weighted mean across bonds of the same firm. This results in a sample of 40 return series and removes any correlation between bonds of the same firm. Figure 2 plots cumulative mean abnormal returns and cumulative mean total returns for the 61 day window centered on the event date. Table VIII reports mean and median cumulative total and abnormal returns for different windows around the event date.

Unlike with stock returns, there is no evidence that average realized returns or abnormal returns were significantly different from zero around the initiation of an off-balance sheet financing program. Although there was a small increase in bond prices prior to the event, the average total return and abnormal return is not significantly different from zero. Due to the relatively small sample size, it is perhaps not surprising that returns are not significantly different from zero. Given the reported standard errors, we cannot rule out fairly large positive or negative mean returns. However, the point estimates are small in magnitude, particularly median abnormal returns, and the point estimates and standard errors for the longest window let us rule

[23] We use cutoffs of 5 years and 10 years to determine which maturity index each sample bond is matched with.

out large negative returns.[24] Combined with the stock price results, we conclude that announcements of off-balance sheet financing programs led investors to increase their expectations of the value of originating firms.

V. Why is SPV Use so Infrequent

Given our empirical results that a unique type of firm uses an SPV and experiences an increase in valuation around the announcement of the program, a natural question is why so few firms choose to use off-balance sheet financing. In this section, we offer evidence to help answer this question. We explore the tradeoff that on-balance sheet creditors face when their borrowers use off-balance sheet financing. On the one hand, the SPV can lower their borrower's cost of capital by insulating assets from bankruptcy costs; on the other hand, removing assets from the balance sheet reduces the amount of collateral available to on-balance sheet lenders. For a firm where granting a senior, secure position to some lenders is valuable, such as firms with high credit risk (Rauh and Sufi (2010)), we propose that this second effect may dominate.[25]

We begin by exploring the mechanism that limits off-balance sheet financing in practice; namely contractual restrictions in loan agreements the prohibit off-balance sheet financing (and other types of financing). Specifically, we provide evidence on four types of covenants found in credit agreements that effectively forbid the use of a specialty-purpose financing SPV: (1) limits on the creation of indebtedness, (2) limits on the granting of additional liens, (3) prohibitions on investments, and (4) the restriction on the sale of assets. We then explore the relationship

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[24] For example, with 95 percent confidence, we can conclude that the mean cumulative total return for the (-1, +30) window is not below -50 bps.

[25] Ayotte and Gaon (2010) point to hold-up during Chapter 11 as a factor that limits securitization. By removing assets from the estate of the originating firm, creditors can more easily liquidate a bankrupt firm, which can result in inefficient liquidation.

between the amount of secured debt and bank debt on firms' balance sheets and the use of an SPV. Since bank debt is most likely to contain restrictive covenants and secured debt is most likely to be harmed by moving assets off the firm's balance sheet, we expect a negative relationship between SPV usage and secured bank debt.

A. Evidence from Loan Agreements

For all of the 108 firms that we identify as using an SPV in 2006, we search through SEC filings around 2006 to find any loan agreements that were in place as of fiscal year-end 2006. We require that the loan agreement have an initiation date prior to the fiscal year-end date and a stated maturity after the end of the year. For 102 of the 108 firms, we are able to find and download the appropriate credit agreement, which would have been in place at the same time as the off-balance sheet financing arrangement. The other six firms all report having a credit agreement, but apparently have never filed the actual agreement as an attachment to any SEC filing.

For each of the 102 loan agreements, we search the contract for the same keywords that we use to identify use of an SPV in 10-K filings. We then scan the text around any hits to determine the nature of the reference. After some experimentation, we established that four types of covenants can restrict the ability of a firm to use off-balance sheet financing. In particular, covenants may restrict borrowers' ability to sell assets, place limits on additional indebtedness, inhibit the granting of liens, and prohibit certain types of investments. Any one of these covenants could, in theory, prevent a firm from using an SPV for off-balance sheet financing of the type we study, but none of the four are necessary. Since the covenants serve other purposes in addition to prohibiting off-balance sheet financing, we examine credit

agreements for all four covenant types and find that the covenants are selectively added and modified based on individual circumstances.

As an example, consider the October 7th, 2004 credit agreement for Owens-Illinois Inc., which contains the following definition:

> "BSN Receivables Securitization Facility" means the receivables securitization facility established pursuant to agreements among BSN Glasspack Services, Credit Commercial de France (HSBC-CCF) and Gestion et Titrisation Internationales on or about November 5, 2000.

This defines the off-balance sheet financing arrangement that we identify in our data. Later in the credit agreement, the Owens-Illionos is contractually restricted from incurring additional debt through a negative covenant. The covenant begins:

> "Company and each Borrower shall not, and shall not permit any of its Subsidiaries to, directly or indirectly, create, incur, assume or guaranty, or otherwise become or remain directly or indirectly liable with respect to, any Indebtedness, except: …"

One of the exceptions is for liability related to the securitization facility, which permits Owens-Illinois, through its BSN Glasspack subsidiary, to over-collateralize the SPV used in the securitization. Later in the agreement, the borrower is restricted from selling assets through a covenant that reads:

> "Company and Borrowers shall not, and shall not permit any of its and their Subsidiaries to enter into any transaction of merger or consolidation, or liquidate, wind-up or dissolve itself (or suffer any liquidation or dissolution), or convey, sell, lease or sub-lease (as lessor or sublessor), transfer or otherwise dispose of, in one transaction or a series of transactions, all or any part of its business, property or assets (including its notes or receivables and Capital Stock of a Subsidiary, whether newly issued or outstanding), whether now owned or hereafter acquired, except …:"

Again, one of the exceptions permits the borrower to sell accounts receivable in connection with the "BSN Receivables Securitization Facility." Obviously, the inclusion of these two exceptions suggests that they are necessary for Owens-Illinois to remain in compliance with its credit agreement and utilize the off-balance sheet financing. Restrictive covenants such as these are

common in credit agreements and usually completely prohibit an action (such as granting new liens) except for certain situations documented in the contract.

Table IX documents the frequency with which we find such "carve outs" in the sample of 102 credit agreements. In only 11 of the agreements (11 percent) do we fail to find any evidence that the borrower is explicitly permitted to use off-balance sheet financing. In about 90 percent of the agreements, we find evidence that the agreement explicitly authorizes, and often limits, the off-balance sheet financing program. If nothing else, this provides convincing evidence that on-balance sheet creditors are aware of the SPV and any implications the program may have on the credit provided by the loan. Limitations on indebtedness and liens are the most common place for off-balance sheet financing to be explicitly permitted. But prohibitions on investments and asset sales can also be used to limit off-balance sheet financing activities.[26]

B. Evidence from On-balance Sheet Financing

Given the evidence that corporate creditors can prohibit the use of off-balance sheet financing, we return to the comparison between users and non-users of SPVs. We now explore differences in the type of debt on firms' balance sheets, focusing on the use of bank debt and secured debt. Since *Compustat* does not provide data on the use of bank debt, we use the footnotes of annual statements to classify the types of debt on firms' balance sheets. To minimize the cost of data collection, we collect this data for our sample of SPV-users and the

[26] In Table IX, there are two reasons that a loan may not explicitly permit off-balance sheet financing. The first is that the agreement does not contain the covenant, and the second is that the covenant contains no mention of the SPV or other off-balance sheet financing. In the vast majority of the cases, the reason is the former, meaning that if the agreement contains the restriction, it nearly always contains the "carve out." This reflects the nature of restrictive covenants that typically rule out all activities except those explicitly permitted.

matched sample of non-users. For the full sample, we repeat the regressions in Table VI but include a measure of secured debt available in *Compustat*.

For each of the 212 firms in our matched sample, we read the footnotes from the 2006 10-K filings to identify the amount of bank debt in each firm's on-balance sheet debt. We classify as bank debt any revolving line of credit or term loan. For lines of credit, we collect the drawn portion that is reported on the balance sheet as well as the limit of line of credit as a measure of debt capacity. To facilitate comparisons, we compute two ratios for each firm. First, we compute the ratio of bank debt to total debt, with the numerator and denominator including just the drawn amount of credit lines. Second, we compute the ratio of bank capacity to total debt capacity, which adjusts the numerator and denominator for the unused portion of credit lines. Specifically, we take the ratio of the limit of all credit lines to the sum of total debt plus unused credit lines. This second ratio provides an estimate of the potential amount of bank debt that could be on firms' balance sheets if they were to fully draw on their credit lines.

Table X reports a comparison of means across the sample of SPV-users and non-users. Consistent with the regression results shown above, SPV-uses have higher leverage than their matched counterparts, as shown in the first row. However, SPV-users use significantly less bank debt. In terms of on-balance sheet debt, SPV-users have less than one-half as much bank debt as compared with similar firms. Part of this difference is attributable to lower utilization of credit lines, but even in terms of bank capacity, SPV-users have significantly less capacity to use bank debt as compared with their matched non-users. The reported differences are large and statistically significant.

To bolster our results from the matched sample, we also compare SPV-users with the entire sample of non-users using a balance sheet measure available in *Compustat*. *Compustat*

reports the amount of secured debt and mortgages that are a part of total debt. Although this variable includes non-bank debt, it is likely comprised predominately of secured bank debt. In our matched sample of firms, the correlation between the *Compustat* secured debt variable and our collected bank debt variable is 0.55.

Table XI replicates the regressions from Table VI but adds two specifications that include as right-hand side variables the ratio of secured debt to total debt. The results show that firms with more secured debt in total debt are significantly less likely to use an SPV. Based on specification (4), a one standard deviation increase in the ratio of secured debt to total debt leads to a 2.7 percentage point reduction in the likelihood that a firm uses an SPV. Compared with the mean frequency of 5.3 percent, this represents a roughly 50 percent decline in the frequency of use. Including the ratio of secured debt to total debt also strengthens the relationship between credit quality and the use of an SPV. For example, comparing specifications (3) and (4), the coefficient on the ratio of interest expense to liabilities increases from 11.592 to 13.831. The change in point estimates increases the impact of a one standard deviation change in interest expense to liabilities from 2.6 percentage points to 3.1 percentage points. This change reflects the negative correlation between credit quality and the use of secured debt, particularly bank debt.

We interpret these results as confirming that the amount of bank debt and secured debt on a firm's balance sheet constrains the use of SPVs to finance assets off-balance sheet. Although firms with more credit risk are likely to find off-balance sheet financing more valuable, the use of secured bank debt also increases with credit risk. Rauh and Sufi (2010) document a very strong relationship between credit quality and secured bank debt; whereas firms with investment-grade ratings use very little secured bank debt, speculative-grade firms rely heavily on secured

bank debt. Our combined evidence shows that only the rare selection of firms with relatively high credit risk and relatively little bank debt are willing and able to use SPVs. For these firms, the associated valuation benefits are positive.

VI. Conclusion

We provide descriptive evidence on the use of off-balance sheet financing by U.S. nonfinancial corporations during 2006. The firms in our sample experienced an average abnormal stock price return of 1%-3% in the days around the origination of an off-balance sheet financing program, and had no change in the price of outstanding bonds. SPV usage was concentrated in relatively large and older firms, with lower market-to-book ratios, suggesting that credit constraints are not the motivation for off-balance sheet financing. Usage was also concentrated in the small share of firms with relatively high credit risk but relatively little bank debt.

The combined results suggest that off-balance sheet financing is a means to isolate assets from costs associated with bankruptcy. Because of their higher expected bankruptcy costs, firms with relatively high credit risk are more likely to use an SPV. However, firms with higher credit risk are more likely to tranche their on-balance sheet liabilities (Rauh and Sufi (2010)), which can make it costly to isolate some assets in a bankruptcy-remote SPV. Theoretically, we suggest that subjecting a certain amount of assets to bankruptcy-costs is necessary to provide sufficient collateral to on-balance sheet lenders. Although costly ex-post, the ability provide on-balance sheet collateral likely provides valuable ex-ante benefits. Several existing models show how collateral can limit problems associated with asymmetric information and agency issues. In practice, the constraint on off-balance sheet financing arises through various loan covenants that effectively prohibit the creation of an SPV to finance assets off-balance sheet. Since these

covenants are more common for riskier borrowers, we observe a natural limit to the amount of off-balance sheet financing that we observe.

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Table I - Which firms use SPVs?

This table presents the percentage of firms that report using an SPV to finance receivables in a 10-K filing during the 2006 fiscal year. The sample includes firms with available data from Compustat and Edgar for fiscal year 2006, as described in section I.

	Number of Firms	Number of Firms with Securitization	Share of Firms with Securitization
Total All Firms	2,505	108	4.3%
By Industry			
Consumer Durables	62	8	12.9%
Chemicals	91	10	11.0%
Manufacturing	329	28	8.5%
Wholesale and Retail Shops	216	18	8.3%
Consumer Non-Durables	152	9	5.9%
Other	338	10	3.0%
Telecom	108	3	2.8%
Healthcare	387	8	2.1%
Business Equipment	668	12	1.8%
Energy	154	2	1.3%
By Size (book assets)			
Less than $100M	786	0	0.0%
$100M to $500M	704	3	0.4%
$500M to $1,000M	323	4	1.2%
$1,000M to $2,500M	316	34	10.8%
$2,500M to $5,000M	157	17	10.8%
Greater than $5,000M	219	50	22.8%
By Receivables / Total Assets			
Less than 5%	471	4	0.8%
5% to 10%	448	11	2.5%
10% to 15%	462	28	6.1%
15% to 20%	401	25	6.2%
20% to 25%	276	16	5.8%
Greater than 25%	447	24	5.4%
By Credit Rating (S&P)			
No Rating	1,878	20	1.1%
Long-Term Rating Only	454	53	11.7%
Long-Term and Short-Term Rating	173	35	20.2%
By Debt Outstanding			
Firm has positive debt	2,017	108	5.4%
Firm does not have positive debt	488	0	0.0%

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Table II - How much financing is done through an SPV?

This table presents summary statistics on the size and usage of securitization for firms that report using securitization to finance receivables in a 10-K filing during the 2006 fiscal year. The sample includes 108 firms that have available data from Compustat and Edgar for fiscal year 2006, as described in section I, that report using securitization in 2006.

	Debt / Assets	Facility Usage / Debt	Facility Limit / Assets	Facility Usage / Limit
All Securitizers	0.29	0.14	0.45	0.53
By Industry				
Consumer Durables	0.31	0.05	0.17	0.40
Chemicals	0.36	0.06	0.21	0.54
Manufacturing	0.31	0.10	0.41	0.41
Wholesale and Retail Shops	0.29	0.26	0.43	0.59
Consumer Non-Durables	0.31	0.11	0.24	0.56
Other	0.27	0.22	0.38	0.48
Telecom	0.27	0.07	0.07	0.96
Healthcare	0.25	0.11	1.83	0.60
Business Equipment	0.24	0.15	0.35	0.71
Energy	0.13	0.04	0.22	0.20
By Size (book assets)				
Less than $100M				
$100M to $500M	0.33	0.16	1.34	0.42
$500M to $1000M	0.29	0.47	0.71	0.74
$1,000M to $2,500M	0.31	0.19	0.37	0.59
$2,500M to $5,000M	0.29	0.11	0.31	0.50
Greater than $5,000M	0.27	0.08	0.47	0.49
By Receivables / Total Assets				
Less than 5%	0.28	0.03	0.08	0.36
5% to 10%	0.33	0.06	0.15	0.69
10% to 15%	0.36	0.09	0.28	0.56
15% to 20%	0.26	0.08	0.75	0.52
20% to 25%	0.26	0.19	0.41	0.59
Greater than 25%	0.25	0.26	0.54	0.42
By Credit Rating (S&P)				
No Rating	0.29	0.33	0.64	0.62
Long-Term Rating Only	0.31	0.10	0.53	0.51
Long-Term and Short-Term Rating	0.27	0.08	0.21	0.51
By Debt outstanding				
Firm has positive debt	0.29	0.14	0.45	0.53
Firm does not have positive debt				

Table III - Summary Statistics

This table presents summary statistics for the regression sample. The sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar for fiscal year 2006, as described in section I. Details on the construction of the variables are available in Appendix Table AII. All ratios have been winsorized at the 1st and 99th percentiles.

	N	Mean	Standard Deviation	10th Percentile	50th Percentile	90th Percentile
Assets	2,503	2,292	9,906	20	300	4,290
Ln(Assets)	2,503	5.704	2.022	2.995	5.702	8.364
Firm Age	2,503	18.830	14.170	5.000	14.000	42.000
Receivables / Assets	2,503	0.152	0.104	0.026	0.133	0.311
Market-to-Book Ratio	2,503	2.170	1.190	1.066	1.762	4.102
EBITDA / Assets	2,503	0.076	0.208	-0.228	0.120	0.288
(CAPEX + R&D) / Lagged Assets	2,503	0.134	0.133	0.018	0.084	0.341
Debt / Assets	2,503	0.192	0.195	0.000	0.143	0.500
Current Ratio	2,503	2.796	2.044	0.954	2.098	6.010
Interest Expense / Liabilities	2,503	0.026	0.024	0.000	0.021	0.062
Secured Debt / Total Debt	2,503	0.268	0.368	0.000	0.005	0.947
Has LT Rating	2,503	0.251	0.433			
Has ST Rating	2,503	0.069	0.254			
Rating: A and Above	2,503	0.029	0.168			
Rating: BBB	2,503	0.046	0.210			
Rating: BB	2,503	0.104	0.306			
Rating: B	2,503	0.066	0.248			
Rating: CCC	2,503	0.005	0.072			

Table IV – Matched Sample Comparison of SPV-Users and Non-Users

This table presents sample means of firm characteristics for the sample of firms reporting use of an SPV ("SPV-Users") and a matched sample of firms not reporting use of an SPV ("Non SPV-User"). The SPV-User sample includes 108 firms that have available data from Compustat and Edgar for fiscal year 2006, as described in section I, that report using an SPV in 2006. The matched sample is generated by finding the firm closest in size (based on total assets) from the same industry, resulting in 104 firms, as described in Section I. The "Difference" column reports the difference in means across the two samples. Statistical significance is based on a two-sided t-test of the null hypothesis that the difference in means is zero.

	SPV-Users	Non SPV-Users	Difference (User-Non User)	
Ln(Assets)	8.379	8.156	0.223	
Firm Age	31.398	31.423	-0.025	
Receivables / Assets	0.188	0.173	0.015	
Market-to-Book Ratio	1.522	1.962	-0.440	***
EBITDA / Assets	0.145	0.165	-0.020	**
(CAPEX + R&D) / Lagged Assets	0.070	0.073	-0.003	
Debt / Assets	0.290	0.235	0.055	***
Current Ratio	1.550	1.858	-0.308	***
Interest Expense / Liabilities	0.030	0.024	0.005	***
Secured Debt / Total Debt	0.122	0.173	-0.051	
Has LT Rating	0.815	0.760	0.055	
Has ST Rating	0.324	0.365	-0.041	
Rating: A and Above	0.074	0.163	-0.089	**
Rating: BBB	0.222	0.202	0.020	
Rating: BB	0.380	0.298	0.082	
Rating: B	0.130	0.096	0.033	
Rating: CCC	0.009	0.000	0.009	

$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table V - SPV Use and Firm Financing Needs

This table presents estimated coefficients from cross-sectional regressions that relate the probability of a firm using an SPV to measures of firm financing needs and constraints calculated as of the same fiscal year. The sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar, as described in section I. The dependent variable in all regressions is an indicator variable that equals one if the firm reports using an SPV to finance receivables in the 2006FY 10-K. All regressions include industry fixed effects based on the Fama-French 38 industry classification of 4-digit SIC codes. "Has ST Rating" and "Has LT Rating" are indicator variables that the firm has a short-term or long-term issuer credit rating from Standard & Poor's. "Firm Age" is based on the first year the firm reports positive assets in Compustat. Details on the construction of all other variables are available in Appendix Table AII. Robust standard errors clustered by industry are reported in parentheses.

	Probability of Using an SPV					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln(Assets)	2.500**	2.120**	2.111**	2.394**	2.118**	2.408**
	(0.615)	(0.568)	(0.571)	(0.596)	(0.565)	(0.594)
Ln(Assets) Squared	-0.122**	-0.097**	-0.097**	-0.115**	-0.097**	-0.116**
	(0.038)	(0.033)	(0.033)	(0.035)	(0.033)	(0.035)
Receivables / Assets	4.015**	4.191**	4.123**	4.554**	4.158**	4.500**
	(0.838)	(0.861)	(0.898)	(0.875)	(0.831)	(0.935)
Has ST Rating		-0.369*	-0.436*	-0.228	-0.364*	-0.302
		(0.188)	(0.203)	(0.200)	(0.183)	(0.212)
Has LT Rating		0.329*	0.316*	0.271	0.326*	0.252
		(0.143)	(0.149)	(0.149)	(0.143)	(0.157)
Ln(Firm Age)			0.126			0.133
			(0.080)			(0.085)
Market-to-Book Ratio				-0.442**		-0.448**
				(0.113)		(0.116)
(CAPEX + R&D) / Lagged Assets					-0.293	0.281
					(1.565)	(1.459)
Industry Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2332	2332	2332	2332	2332	2332
Pseudo R^2	0.419	0.427	0.429	0.447	0.427	0.449

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$

Table VI - SPV Use and Firm Credit Quality

This table presents estimated coefficients from cross-sectional regressions that relate the probability of a firm using an SPV to measures of firm credit quality calculated as of the same fiscal year. The sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar, as described in section I. The dependent variable in all regressions is an indicator variable that equals one if the firm reports using an SPV to finance receivables in the 2006FY 10-K. All regressions include industry fixed effects based on the Fama-French 38 industry classification of 4-digit SIC codes. "Has ST Rating" and "Has LT Rating" are indicator variables that the firm has a short-term or long-term issuer credit rating from Standard & Poor's. "Firm Age" is based on the first year the firm reports positive assets in Compustat. "Rating: X" is an indicator that the firm has long-term rating X from S&P, with the omitted category being unrated firms. Details on the construction of all other variables are available in Appendix Table AII. Robust standard errors clustered by industry are reported in parentheses.

	Probability of Using an SPV				
	(1)	(2)	(3)	(4)	(5)
Ln(Assets)	2.310**	2.256**	2.251**	2.484**	2.347**
	(0.672)	(0.571)	(0.568)	(0.649)	(0.588)
Ln(Assets) Squared	-0.109**	-0.105**	-0.111**	-0.117**	-0.113**
	(0.039)	(0.033)	(0.034)	(0.038)	(0.035)
Receivables / Assets	4.402**	4.928**	4.098**	5.041**	4.717**
	(1.011)	(1.011)	(0.926)	(0.971)	(1.017)
Ln(Firm Age)	0.144	0.187*	0.170*	0.163	0.195*
	(0.076)	(0.085)	(0.085)	(0.085)	(0.087)
Market-to-Book Ratio	-0.368**	-0.401**	-0.434**	-0.382**	-0.378**
	(0.096)	(0.109)	(0.116)	(0.114)	(0.116)
Has ST Rating	-0.231	-0.322	-0.375	-0.302	-0.379
	(0.251)	(0.218)	(0.213)	(0.221)	(0.213)
Has LT Rating		0.160	0.199	0.130	0.090
		(0.158)	(0.152)	(0.159)	(0.155)
Rating: A and Above	-0.209				
	(0.404)				
Rating: BBB	0.260				
	(0.299)				
Rating: BB	0.246				
	(0.171)				
Rating: B	0.281				
	(0.163)				
Rating: CCC	0.497				
	(0.839)				
Debt / Assets		1.118*			-0.128
		(0.499)			(0.685)
Current Ratio			-0.450**		-0.448**
			(0.160)		(0.153)
Interest Exp. / Liab.				11.331**	11.592*
				(4.031)	(5.772)
Industry Controls	Yes	Yes	Yes	Yes	Yes
Observations	2332	2332	2332	2332	2332
Pseudo R^2	0.453	0.455	0.470	0.456	0.475

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$

Table VII – Cumulative Abnormal Stock Returns Around Announcement of SPV

This table presents results from the stock price event study using the 80 firms with usable stock returns and an identifiable date when the firm first began using off-balance sheet financing through an SPV. The event date is the origination date of the contract governing the transaction. The numbers in the table are mean or median cumulative abnormal returns over various windows. Cumulative abnormal returns are computed using a single-factor and three-factor market model estimated during a 210 day window before the event that ends 46 days before the event. Cross-sectional standard errors are reported in parentheses. Significance levels are for the null hypothesis the mean or median is equal to 0, based on a t -test for the mean and a signed-rank test for the median.

	Single-Factor MM		Three-Factor MM	
Event Window	Mean	Median	Mean	Median
(-30 , -2)	-0.03%	0.16%	0.52%	-1.87%
	(2.50%)		(2.52%)	
(-1, +1)	0.67% *	1.78% *	0.91% *	0.45% *
	(0.46%)		(0.47%)	
(-1, +5)	1.61% ***	3.54% ***	1.86% ***	1.72% **
	(0.67%)		(0.64%)	
(-1, +30)	1.72%	3.89% *	2.81% *	1.53%
	(1.67%)		(1.71%)	

* $p<.1$, ** $p<.05$, *** $p<.01$

Table VIII – Cumulative Bond Returns Around Announcement of SPV

This table presents results from the bond price event study using the 103 corporate bonds from 40 firms with usable bond returns and an identifiable date when the firm first began using off-balance sheet financing through an SPV. The event date is the origination date of the contract governing the transaction. Returns are first averaged across all bonds from the same firm. The numbers in the table are mean or median cumulative total or abnormal returns over various windows, including accrued interest. Cumulative abnormal returns are computed as the difference between actual returns and the return on an index with similar credit risk and time-to-maturity. Cross-sectional standard errors (fully clustered by firm) are reported in parentheses. None of the estimates are significantly different from zero at the 10 percent level.

	Cumulative Total Return (bps)		Cumulative Abnormal Return (bps)	
Event Window	Mean	Median	Mean	Median
(-30 , -2)	89	19	90	-9
	(101)		(81)	
(-1, +1)	-19	8	-8	7
	(26)		(30)	
(-1, +5)	-45	20	-38	-7
	(44)		(50)	
(-1, +30)	57	152	24	26
	(54)		(63)	

Table IX – SPV Carve Outs in Credit Agreements

This table presents the frequency with which credit agreements explicitly permit off-balance sheet financing for our sample of 102 credit agreements related to 108 firms that reported using an SPV during fiscal year 2006. The credit agreements have an origination date prior to fiscal year-end 2006 and a stated maturity beyond fiscal year-end 2006.

	Fraction Granting Permission
Somewhere in Agreement	89%
Source	
Disposition of Assets	47%
Limitation on Indebtedness	69%
Limitation on Liens	64%
Prohibited Investments	30%

Table X - SPV Use and Bank Debt, Matched Sample

This table presents sample means on usage of bank debt for the sample of users of an SPV and a matched sample of non-users. The SPV-user sample includes 108 firms that have available data from Compustat and Edgar for fiscal year 2006, as described in section I, that report using securitization in 2006. The matched sample is generated by finding the firm closest in size (based on total assets) from the same industry, resulting in 104 firms. Bank Debt is the sum of all term loans and utilized lines of credit reported on the balance sheet. Bank Capacity is the sum of all term loans and the limit of all lines of credit. Debt Capacity is the sum of total debt on the balance sheet and unused capacity on all lines of credit. Standard errors are reported in parentheses.

	SPV-User	Matched Non-User	Difference	
Total Debt / Total Assets	29.1%	23.8%	-5.3%	**
	(1.4%)	(1.7%)	(1.1%)	
Bank Debt / Total Debt	20.1%	42.3%	22.2%	**
	(3.3%)	(16.5%)	(8.3%)	
Bank Capacity / Debt Capacity	44.5%	59.9%	15.4%	
	(2.1%)	(7.7%)	(3.9%)	**

** $p<.01$

Table XI - SPV Use and Secured Debt, Full Sample

This table presents estimated coefficients from cross-sectional regressions that relate the probability of a firm using an SPV to measures of firm credit quality calculated as of the same fiscal year. The sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar, as described in section I. The dependent variable in all regressions is an indicator variable that equals one if the firm reports using an SPV to finance receivables in the 2006FY 10-K. Explanatory variables are identical to Table VI with the exception of "Secured Debt / Total Debt," which is the ratio of secured debt and mortgages to total balance sheet debt. Robust standard errors clustered by industry are reported in parentheses.

	Probability of Using an SPV			
	(1)	(2)	(3)	(4)
Ln(Assets)	2.310**	2.316**	2.347**	2.317**
	(0.672)	(0.665)	(0.588)	(0.577)
Ln(Assets) Squared	-0.109**	-0.110**	-0.113**	-0.112**
	(0.039)	(0.038)	(0.035)	(0.034)
Receivables / Assets	4.402**	4.322**	4.717**	4.603**
	(1.011)	(0.999)	(1.017)	(0.997)
Ln(Firm Age)	0.144	0.124	0.195*	0.178
	(0.076)	(0.079)	(0.087)	(0.091)
Market-to-Book Ratio	-0.368**	-0.395**	-0.378**	-0.410**
	(0.096)	(0.089)	(0.116)	(0.109)
Has ST Rating	-0.231	-0.286	-0.379	-0.398
	(0.251)	(0.259)	(0.213)	(0.223)
Rating: AAA - A	-0.209	-0.189		
	(0.404)	(0.398)		
Rating: BBB	0.260	0.191		
	(0.299)	(0.297)		
Rating: BB	0.246	0.296		
	(0.171)	(0.172)		
Rating: B	0.281	0.330*		
	(0.163)	(0.165)		
Rating: CCC	0.497	0.625		
	(0.839)	(0.755)		
Secured Debt / Total Debt		-0.565*		-0.796**
		(0.239)		(0.287)
Has LT Rating			0.090	0.072
			(0.155)	(0.151)
Debt / Assets			-0.128	0.031
			(0.685)	(0.684)
Current Ratio			-0.448**	-0.464**
			(0.153)	(0.150)
Interest Exp. / Liab.			11.592*	13.831*
			(5.772)	(6.422)
Industry Controls	Yes	Yes	Yes	Yes
Observations	2332	2332	2332	2332
Pseudo R^2	0.453	0.458	0.475	0.485

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$

Figure 1 – Stock Return Event Study

This figure presents results from the stock price event study using the 80 firms with usable stock returns and an identifiable date when the firm first began using off-balance sheet financing through an SPV. The figure plots cumulative average abnormal returns (CAAR) using a single-factor or three-factor market model estimated during a 210 day window before the event that ends 46 days before the event day, which is the origination date of the contract governing the transaction.

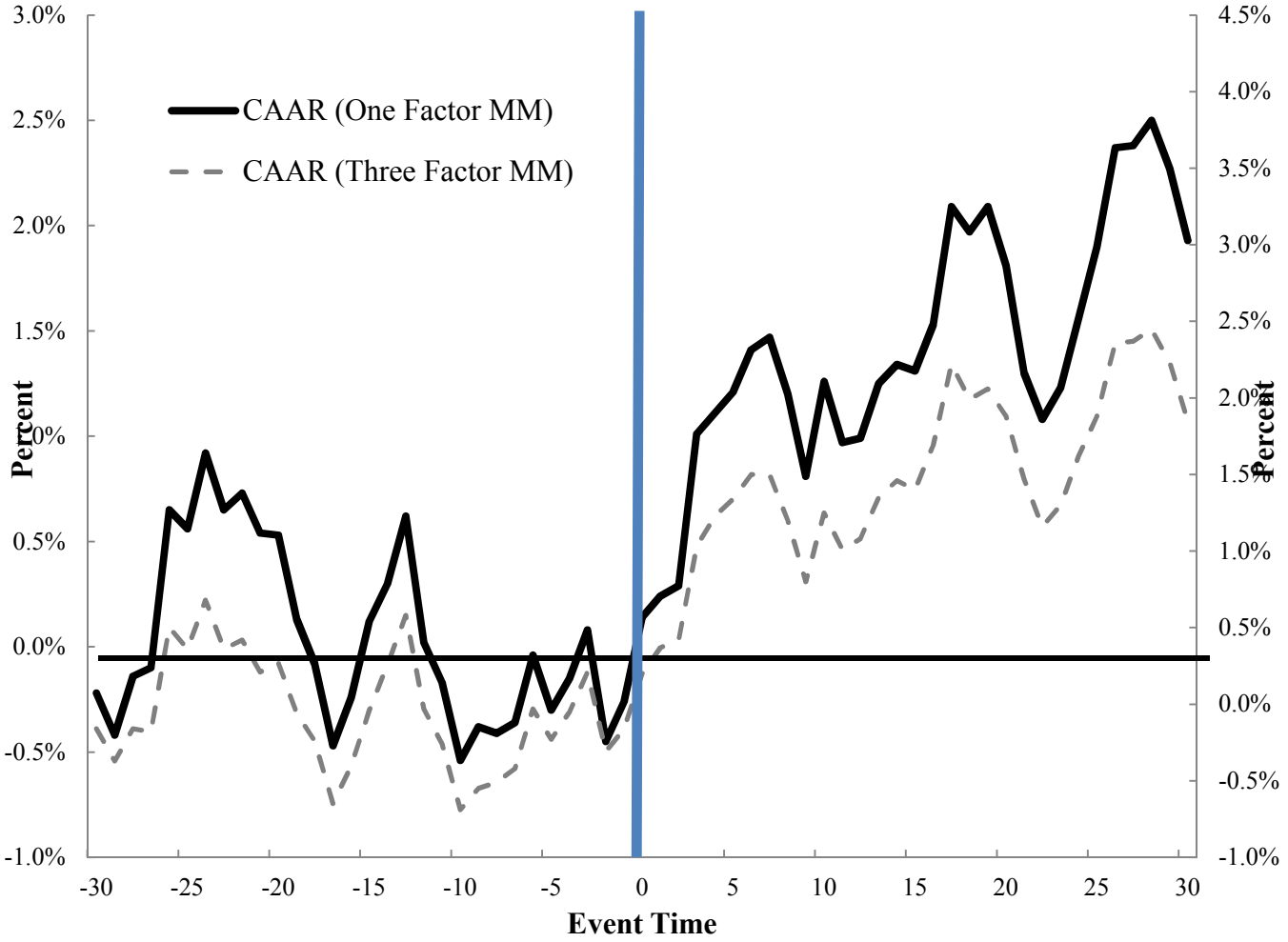

Figure 2 – Bond Return Event Study

This figure presents results from the bond price event study using the 103 corporate bonds from 40 firms with usable bond returns and an identifiable date when the firm first began using off-balance sheet financing through an SPV. The figure plots cumulative average abnormal returns (CAAR) and cumulative average total returns (CATR), in basis points, for the 61 days around the event day, which is the origination date of the contract governing the transaction.

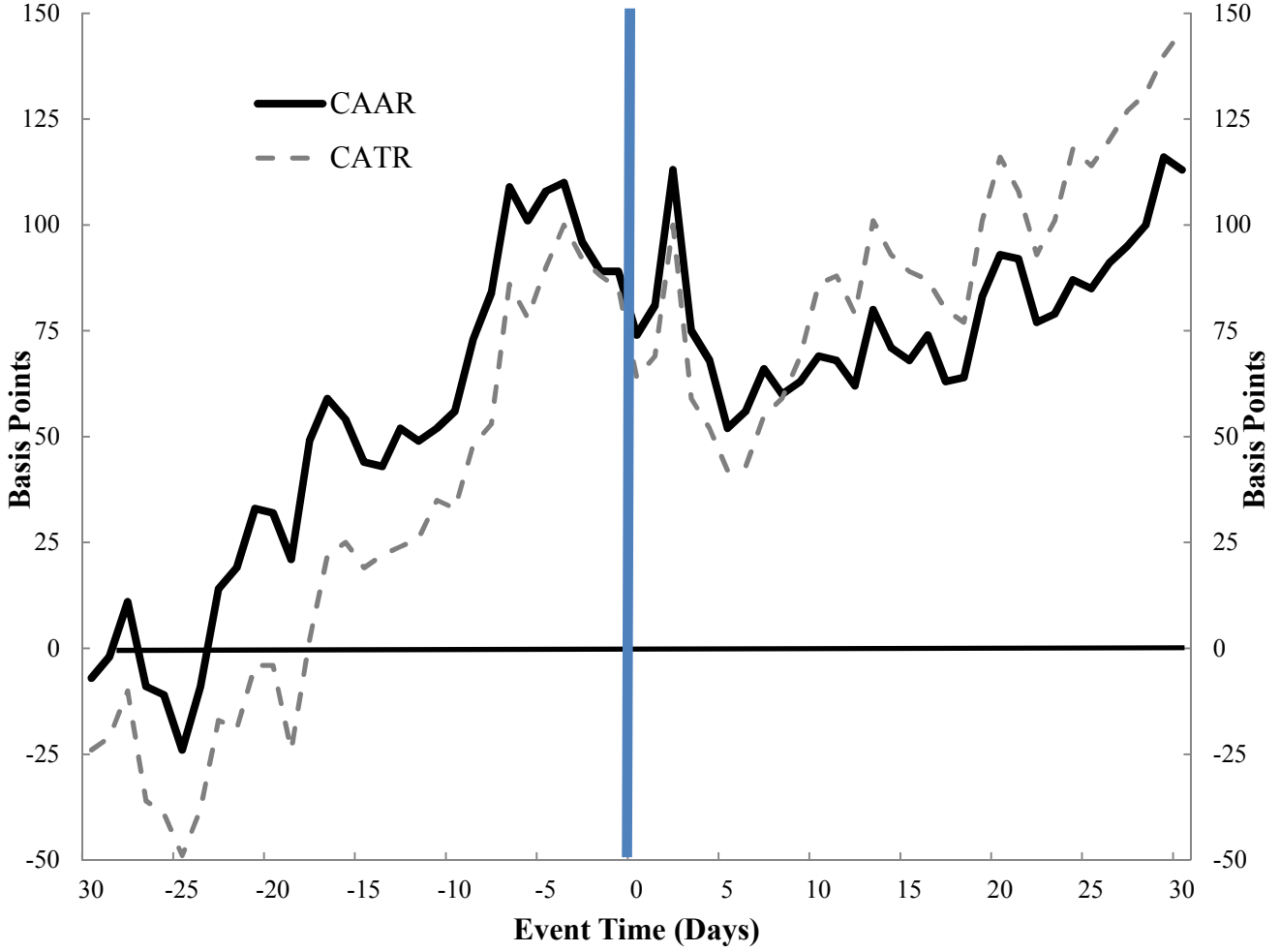

Table AI – List of Firms with Receivables Financing SPV

This table lists all nonfinancial firms that reported using a special purpose financing subsidiary to finance receivables in a 10-K filing from the 2006 fiscal year. The sample includes firms with available data from Compustat and Edgar for fiscal year 2006, as described in section I.

	Company Name	Facility Limit	Initial Contract Date	Have Stock Price Data	Have Bond Price Data	Have Recent Loan Contract
1	Actuant Corp	60	May-01	YES	NO	YES
2	Acuity Brands Inc.	100	Sep-03	YES	YES	YES
3	AGCO Corp	495	Jan-00	YES	YES	YES
4	Alliance One International Inc	55	Sep-06	YES	YES	YES
5	American Greetings Corp.	150	Aug-01	YES	YES	YES
6	AmerisourceBergen Corp	700	Jul-03	YES	NO	YES
7	AMETEK Inc.	75	NA	NO	NO	YES
8	Amphenol Corp	100	Dec-93	YES	NO	YES
9	Anixter International Inc.	225	Oct-00	YES	YES	YES
10	Arch Chemicals Inc.	80	Mar-02	YES	NO	YES
11	Arrow Electronics Inc	550	Mar-01	YES	NO	YES
12	ArvinMeritor Inc	377	Sep-05	YES	YES	YES
13	Avnet Inc	450	Jun-01	YES	YES	YES
14	Baldor Electric Co	60	NA	NO	NO	YES
15	Ball Corp	225	NA	NO	NO	YES
16	Baxter International Inc	500	NA	NO	NO	YES
17	BorgWarner Inc	50	Jan-94	YES	NO	YES
18	Boston Scientific Corp	350	Aug-02	YES	YES	YES
19	Burlington Northern Santa Fe Corp	700	Jun-97	YES	YES	NO
20	Cardinal Health Inc	800	NA	NO	NO	YES
21	CBS Corp	550	NA	NO	NO	YES
22	Chemtura Corp	470	Dec-98	YES	NO	YES
23	Church & Dwight Co. Inc.	100	Jan-03	YES	NO	YES
24	Commercial Metals Co	130	Jun-01	YES	NO	YES
25	Conexant Systems Inc	80	Nov-05	YES	NO	NO
26	CONMED Corp	50	Nov-01	YES	YES	YES
27	CONSOL Energy Inc.	125	Apr-03	YES	YES	YES
28	Cooper Tire & Rubber Co	175	Aug-06	YES	YES	YES
29	Covenant Transportation Group Inc	70	Dec-00	YES	NO	YES
30	Crown Holdings Inc	345	Jan-01	YES	YES	YES
31	CSS Industries Inc.	100	Apr-01	YES	NO	YES
32	Cummins Inc.	200	Dec-00	YES	YES	YES
33	Dean Foods Co	600	Jun-00	YES	YES	YES
34	Edwards Lifesciences Corp	100	Dec-00	YES	NO	YES
35	Equifax Inc.	125	Sep-04	YES	YES	YES

	Company Name	Facility Limit	Initial Contract Date	Have Stock Price Data	Have Bond Price Data	Have Recent Loan Contract
36	Ferrellgas Partners LP	160	Sep-00	YES	NO	YES
37	Ferro Corp.	100	Sep-00	YES	NO	YES
38	General Cable Corp.	296	May-01	YES	NO	YES
39	Georgia Gulf Corp.	165	Nov-02	YES	YES	YES
40	Goodyear Tire & Rubber Co	362	Nov-96	YES	NO	YES
41	Greif Inc.	234	Oct-03	YES	YES	YES
42	Hess Corp	800	NA	NO	NO	YES
43	Honeywell International Inc.	500	NA	NO	NO	YES
44	Huntsman Corp	500	NA	NO	NO	NO
45	Insight Enterprises Inc	225	Dec-02	YES	NO	YES
46	International Paper Co	1,000	Dec-01	YES	YES	YES
47	Invacare Corp	100	Sep-05	YES	NO	YES
48	J.B. Hunt Transport Services Inc.	200	Jul-06	YES	NO	YES
49	Jabil Circuit Inc	250	Feb-04	YES	YES	YES
50	Jarden Corp	250	Aug-06	YES	NO	YES
51	Kennametal Inc.	125	Jun-99	YES	NO	YES
52	Lear Corp	150	NA	NO	NO	YES
53	Lennox International Inc.	150	Jun-03	YES	NO	YES
54	Lexmark International Inc.	200	Jan-94	NO	NO	YES
55	Manitowoc Company Inc. (The)	90	Nov-05	YES	YES	YES
56	Manpower Inc	200	Dec-98	YES	NO	YES
57	Mattel Inc.	400	Mar-02	YES	YES	YES
58	McKesson Corp	700	Jun-99	YES	YES	YES
59	Medco Health Solutions Inc.	600	Aug-03	NO	YES	YES
60	Meredith Corp	100	Apr-02	YES	NO	YES
61	Mohawk Industries Inc.	350	Oct-00	YES	NO	YES
62	Monsanto Co	500	Apr-02	YES	YES	YES
63	Motorola Inc.	1,300	NA	NO	NO	NO
64	Nalco Holding Co	100	Jun-04	NO	YES	YES
65	Officemax Inc	200	Sep-98	YES	NO	YES
66	Owens-Illinois Inc.	382	NA	NO	NO	YES
67	Packaging Corp Of America	150	Nov-00	YES	YES	YES
68	Pactiv Corp	130	NA	NO	NO	YES
69	Patterson Companies Inc	550	May-02	YES	NO	YES
70	PepsiAmericas Inc.	150	NA	NO	NO	YES
71	PerkinElmer Inc.	65	Dec-01	YES	NO	YES
72	Polaris Industries Inc.	1,000	Feb-96	YES	NO	YES
73	PolyOne Corp	175	May-03	YES	YES	YES
74	Pool Corp	225	Mar-03	YES	NO	YES
75	Quest Diagnostics Inc	300	Jul-00	YES	YES	YES

	Company Name	Facility Limit	Initial Contract Date	Have Stock Price Data	Have Bond Price Data	Have Recent Loan Contract
76	Ralcorp Holdings Inc.	66	Sep-01	YES	YES	YES
77	Raytheon Co.	173	Oct-03	YES	YES	YES
78	Rite Aid Corp.	400	Sep-04	YES	YES	YES
79	Rock-Tenn Co	100	Nov-00	YES	NO	YES
80	Rohm and Haas Co	31	Nov-03	YES	YES	NO
81	Ryder System Inc	200	Sep-05	YES	NO	YES
82	Sanmina-SCI Corp	472	NA	NO	NO	YES
83	School Specialty Inc.	175	Nov-00	YES	NO	YES
84	Sealed Air Corp	125	Dec-01	YES	NO	YES
85	Sherwin-Williams Co (The)	500	Feb-06	YES	NO	YES
86	Skyworks Solutions Inc	50	Jul-03	YES	NO	YES
87	Smurfit-Stone Container Corp	475	Nov-04	YES	YES	YES
88	Stanley Works (The)	150	NA	NO	NO	YES
89	Stryker Corp	200	Nov-99	YES	NO	YES
90	SYNNEX Corp	325	Aug-02	NO	NO	YES
91	Teleflex Inc	50	NA	NO	NO	YES
92	Tenneco Inc	150	NA	NO	NO	YES
93	Time Warner Inc	805	NA	NO	NO	YES
94	Timken Co (The)	200	Dec-02	YES	NO	YES
95	TRW Automotive Holdings Corp	504	Feb-03	NO	YES	YES
96	Tyson Foods Inc.	750	Oct-01	YES	YES	YES
97	Union Pacific Corp	600	NA	NO	NO	YES
98	Unisys Corp	300	Dec-00	YES	YES	NO
99	United Rentals Inc.	300	May-05	YES	YES	YES
100	United States Steel Corp	500	Nov-01	YES	NO	YES
101	United Stationers Inc	225	Apr-98	YES	NO	YES
102	Viacom Inc	950	NA	NO	NO	YES
103	Visteon Corp.	325	Mar-04	YES	YES	YES
104	Volt Information Sciences Inc.	200	Apr-02	YES	NO	YES
105	WESCO International Inc	400	Jun-99	NO	NO	YES
106	Wolverine Tube Inc.	90	Apr-05	YES	YES	YES
107	Xerox Corp	6,518	NA	NO	NO	YES
108	YRC Worldwide Inc	650	Aug-96	YES	NO	YES
	Number of Firms	108	86	80	40	102

Table AII – List of Firms with Receivables Financing SPV

This table lists the variables used in the analysis for the sample of firms with available data from Compustat and Edgar for fiscal year 2006, as described in sections I and III.

Variable	Source	Description
SPV Limit	10-K	Maximum available financing through SPV
SPV Debt	10-K	Actual borrowing through SPV
SPV Retained Interest	10-K	Difference between SPV assets and SPV Debt
SPV Off B/S	10-K	Indicator that SPV not consolidated on balance sheet
Assets	Compustat	Compustat *at* + SPV Debt, if SPV Off B/S = 0
Liabilities	Compustat	Compustat *lt* + SPV Debt, if SPV Off B/S = 0
Current Assets	Compustat	Compustat *act* + SPV Debt, if SPV Off B/S = 0
Current Liabilities	Compustat	Compustat *lct* + SPV Debt, if SPV Off B/S = 0
Debt	Compustat	Compustat *dlc* + *dltt* + SPV Debt, if SPV Off B/S = 0
Secured Debt	Compustat	Compustat *dm*
Bank Debt	10-K	Term loans + utilized credit lines
Bank Capacity	10-K	Term loans + aggregate limit on all credit lines
Debt Capacity	10-K	Debt + Bank Capacity - Bank Debt
Receivables	Compustat	Compustat *rect* + SPV Debt, if SPV Off B/S = 0
MV Equity	Compustat	Stock price at fiscal year-end (*prcc_f*) x Common shares outstanding (*csho*)
BV Equity	Compustat	Assets - Liabilities + Deferred Tax Credits (*txditc*)
Market-to-Book	Compustat	MV Equity / BV Equity
EBITDA	Compustat	Compustat *oibdp*
CAPEX	Compustat	Compustat *capx*
R&D	Compustat	Compustat *xrd*
Firm Age	Compustat	Years since IPO or first Compustat observation
Rating	Compustat	S&P long-term issuer credit rating

Figure A1a - SPV Use and Firm Characteristics

This figure presents empirical cumulative distributions for measures for various firm characteristics for users of an SPV (green, solid line), the matched sample of non SPV-users (red, dotted line) and all other firms in Compustat (blue, dashed line). The full sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar, as described in section I.

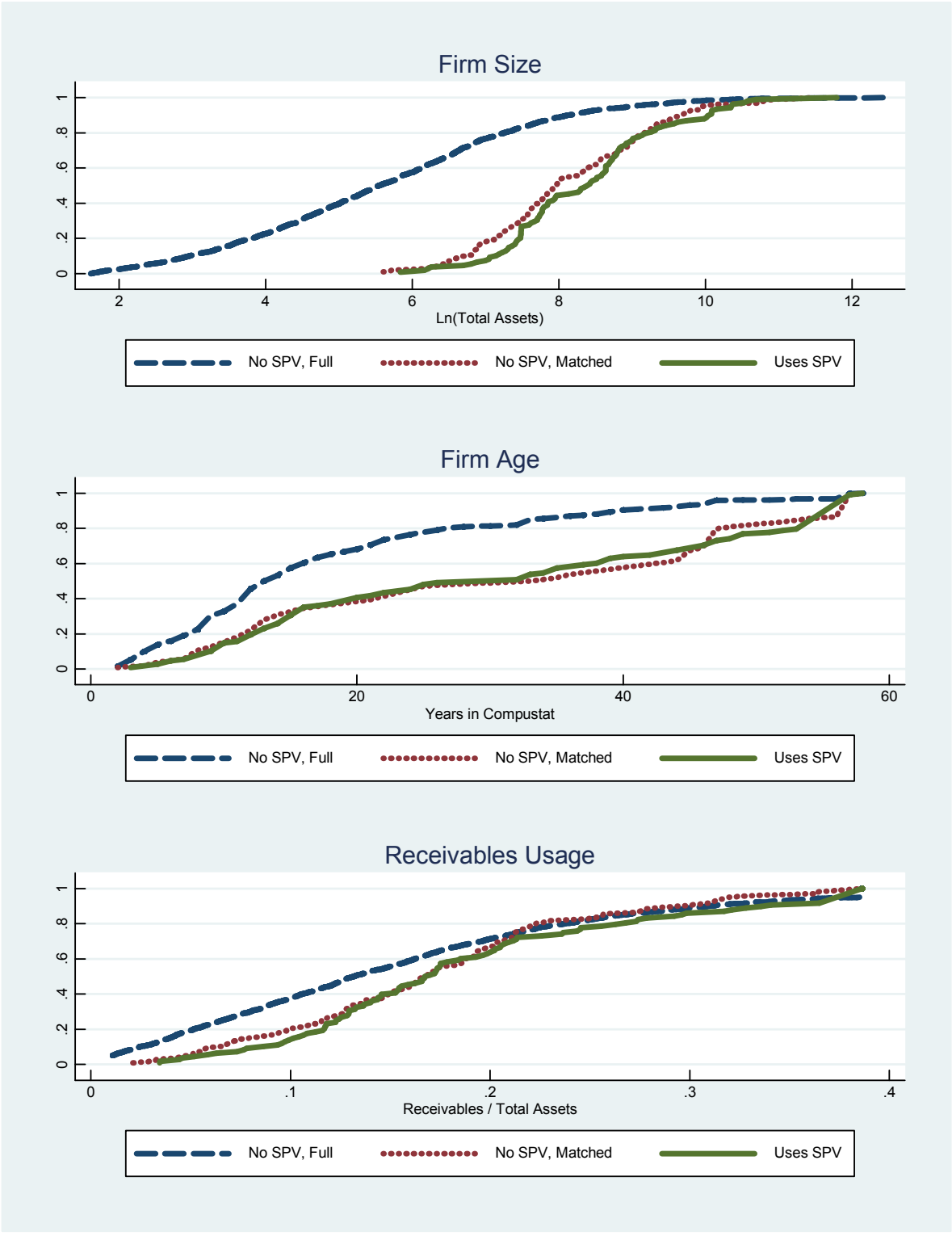

Figure A1b - SPV Use and Firm Financing Needs / Constraints

This figure presents empirical cumulative distributions for measures for various firm characteristics for users of an SPV (green, solid line), the matched sample of non SPV-users (red, dotted line) and all other firms in Compustat (blue, dashed line). The full sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar, as described in section I.

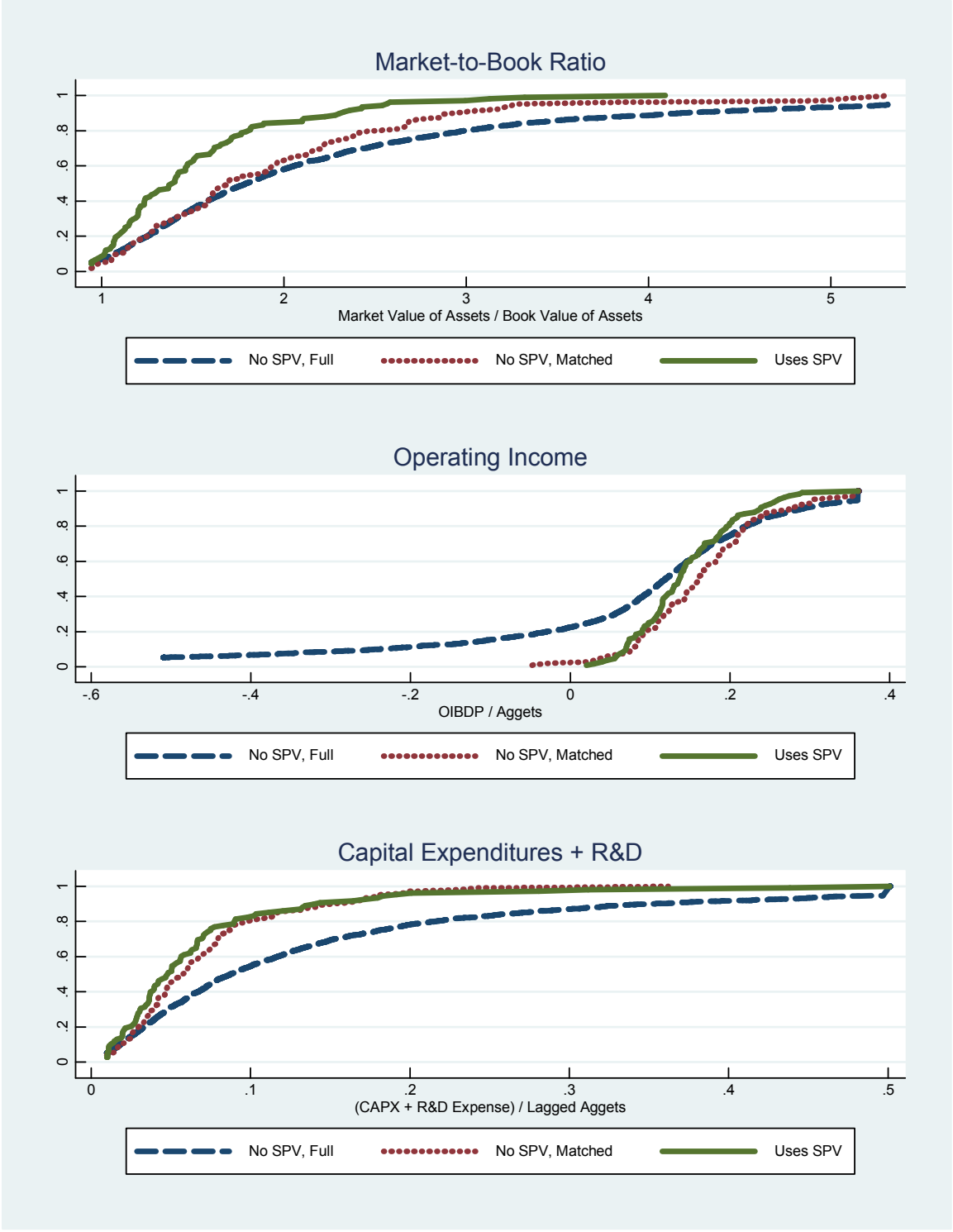

Figure A1c - SPV Use and Firm Credit Quality

This figure presents empirical cumulative distributions for measures for various firm characteristics for users of an SPV (green, solid line), the matched sample of non SPV-users (red, dotted line) and all other firms in Compustat (blue, dashed line). The full sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar, as described in section I.

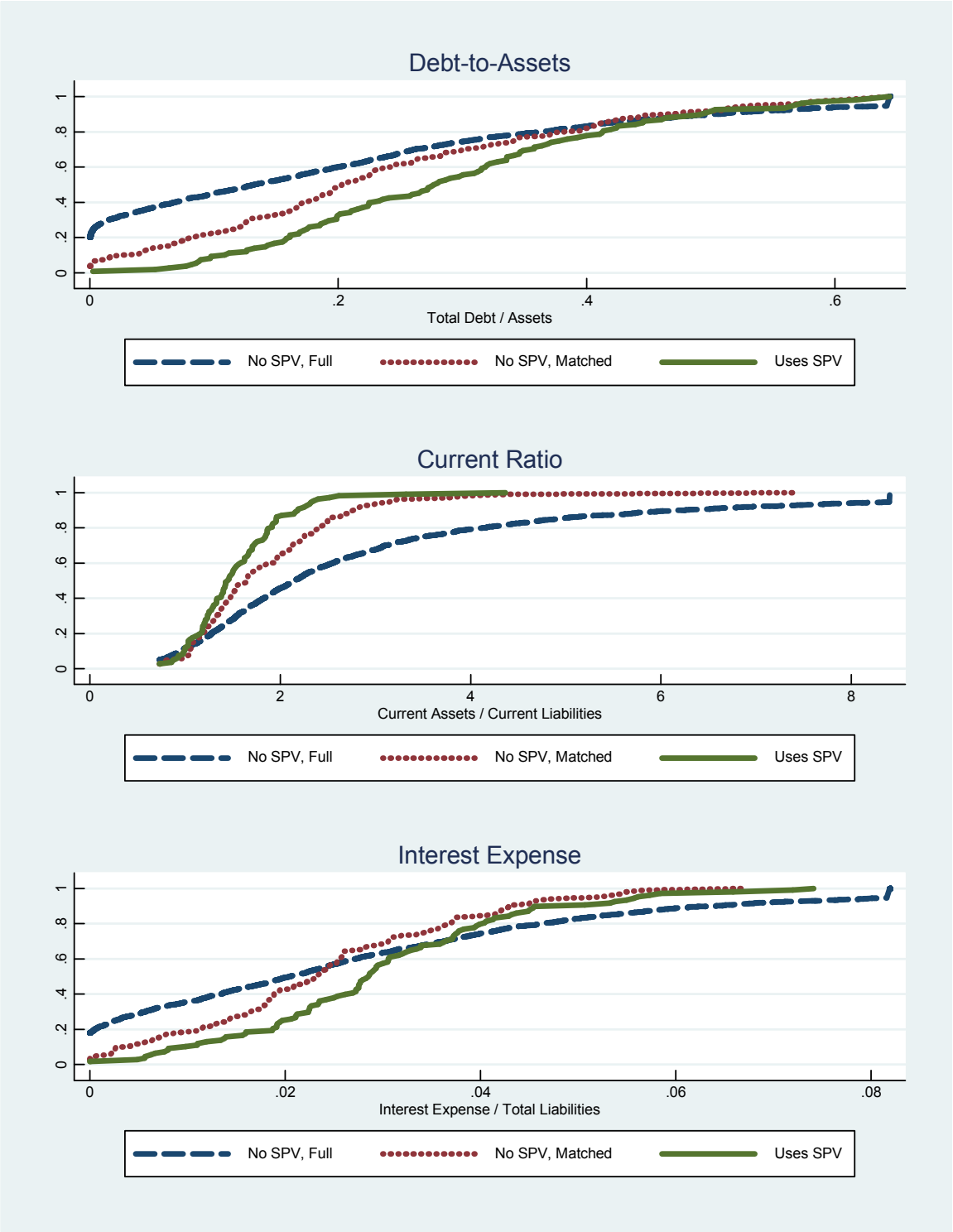

Figure A1d - SPV Use and Secured Debt

This figure presents empirical cumulative distributions for measures for various firm characteristics for users of an SPV (green, solid line), the matched sample of non SPV-users (red, dotted line) and all other firms in Compustat (blue, dashed line). The full sample includes the 2006 fiscal year for firms that have available data from Compustat and Edgar, as described in section I.