The Syndicate Structure of Securitized Corporate Loans

Zhengfeng Guo[1*] and Shage Zhang[2]

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Abstract

Using a large panel dataset of syndicated corporate loan facilities, we empirically identify the factors that influence the likelihood of securitization and the determinants of syndicate structure. The evidence reveals that facilities with higher credit risk and less information asymmetry are more likely to be securitized, while the percentage of a facility being securitized decreases with credit risk. We also find that securitization is associated with smaller lead arranger and total bank shares, but larger shares held by non-CLO institutional investors. Such a relationship exists in Term A, Term B, and leveraged facilities, suggesting that the relationship between securitization and syndicate structure is not entirely driven by the practice of bank and institutional participants targeting different segments of the syndicated loan market. Further analysis shows that the negative relationship between securitization and lead arranger share is stronger in the presence of greater information asymmetry.

Key words: Collateralized Loan Obligations; Securitization; Lead Arranger Share; Information Asymmetry; Syndicate Structure

JEL classification: G21; G23; G32

[1]* Corresponding author. Credit Risk Analysis Division, Office of the Comptroller of the Currency, 400 7th Street Southwest, Washington, DC 20024, Phone: 001-202-649-7255, Email: zhengfeng.guo@occ.treas.gov

[2] School of Business, Trinity University, One Trinity Place, San Antonio, TX 78212, Phone: 001-210-999-7083, Email: szhang@trinity.edu

1. Introduction

Collateralized Loan Obligations (CLOs) are structured financial products primarily backed by syndicated loans.[1] Despite a significant decrease in volume during the financial crisis, the issuance of CLOs was resurrected before long. According to S&P Capital IQ/LCD, CLO issuance in the U.S. in April 2014 hit $11.8 billion. In the wake of a large CLO market, finance researchers including Bord and Santos (2011), Shivdashani and Wang (2011), Benmelech et al. (2012), Wang and Xia (2014), and others, have recently sought to better understand the influence of CLO market on syndicated corporate loans by analyzing the effects of securitization on lead bank incentives, syndicated loan performance, and the cost of borrowing.

In this paper, we examine the syndicate structure of securitized corporate loans. The syndicate structure plays an important role in determining loan yields (Ivashina, 2009), allowing lending banks to credibly commit to loans they originate, and leveraging bank's private information to the benefit of borrowing firms (Narayanan et al., 2004). Thus, our study offers another important dimension to better understand the role of securitization. With our rich dataset, we are able to clearly identify a large sample of securitized loan facilities and observe their syndicate structure over time. This allows us to address the following questions: (1) what are the factors that influence the likelihood of a loan facility being securitized? (2) Upon a decision of securitization, what proportion of the loan facility in question will be securitized? (3) How does securitization affect the syndicate structure and shares held by different parties, such as the lead arranger, bank participants and institutional participants?

[1]A syndicated loan facility is considered as securitized if a fraction of the loan facility is sold to CLO entities that issue CLOs using loans as collaterals.

Our main results indicate that a facility is more likely to be securitized as the facility amount and maturity increase, as information about the borrower becomes more transparent, as the borrower becomes larger, and as the facility's observable risk measured by credit and performance ratings increase. Consistent with the argument that the pursuit of riskier loans is to seek high returns to suffice CLO manager's financing cost (Benmelech and Dlugosz, 2009), our finding suggests that CLO entities have a strong preference towards investing in riskier but more transparent loan facilities.

We document that the total percentage share held aggregately by all CLO entities in a facility (termed as percentage of securitization) varies a lot among securitized facilities. Our analysis reveals that although credit risk increases the likelihood of securitization, it is negatively associated with the percentage of securitization in a loan facility. Less information asymmetry, on the other hand, is associated with higher percentage of securitization. The percentage of securitization is significantly higher if the borrower is a public firm with more transparent financial information available, and if the lead arranger is extending a credit to a distant borrower who presumably has a less severe asymmetric information problem (Petersen and Rajan, 2002).

Consistent with Bord and Santos (2012), we find that both lead arranger share and total bank share are significantly smaller in securitized loan facilities. In contrast, the aggregate share held by all non-CLO institutional investors (such as hedge fund, private equity fund, mutual fund, insurance companies and financial companies) is much larger in securitized loan facilities. The average difference in lead arranger share and the aggregate share by all non-CLO institutional investors between securitized and non-securitized facilities are around -9 to -11 percentage points and 17 to 19 percentage points, respectively, after controlling for facility, borrower and lead arranger characteristics.

One potential explanation of lower lead arranger and total bank shares is that institutional investors crowd out the fund contributed by the lead arranger and other bank participants, given the observation that institutional investors often invest in Term B facilities and securitization also occurs more often among Term B facilities. We investigate this possibility by looking at subsamples of Term A and Term B facilities separately. The evidence reveals that securitization is associated with lower lead arranger and total bank shares in both subgroups and the magnitude is slightly larger among Term B facilities. Moreover, we include the number of institutional participants (including both CLO and non-CLO institutions) in a syndicate to explicitly control the demand effect from institutional investors. We still find both lead arranger and total bank shares to be considerably smaller in securitized facilities. These results suggest that institutional demand can't fully explain the lower lead arranger and total bank shares in securitized facilities. In other words, having CLO entities in a syndicate has a distinct impact on the bank shares beyond the number of institutional investors involved.

Because the majority of securitized facilities are issued by borrowers with speculative-grade credit ratings, the capital regulations of bank participants can also result in lower bank shares in securitized facilities. To explore this possibility, we look at the subsample of leveraged loan facilities. We find that both lead arrangers and bank participants can hold large proportions of speculative loan facilities, and even the entire facilities in some cases. The lead arranger share ranges from 0% to 57% and the total bank share ranges from 0% to 100% among leveraged loan facilities. Moreover, securitization is again associated with lower lead arranger and bank shares in this subsample, suggesting that our results are not entirely due to bank regulations.

Finally, lower lead arranger and bank shares can be indicative of a potential adverse selection problem. Theory suggests that lead arrangers' exposure to loans they originate induces

proper ex ante screening and ex post monitoring effort; hence, it is an important mechanism to reduce asymmetric information between the borrower and outside lenders (Holmstrom and Tirole, 1997). Securitization can change such incentives because originating banks can sell off the loans to CLO entities that have a high demand for loans in order to underwrite CLOs. The incentive of securitization can be stronger when the lead arranger possesses negative private information on the quality of the loan, leading to a more severe adverse selection issue. Our finding that a lead arranger holds an even smaller proportion of a securitized facility when the issuer is a private company or when a public issuer lacks a credit rating suggests a potential adverse selection problem.

We find non-CLO institutional investors play a unique role in the syndicated loan market by supplying capital to risky loans. While lead arranger, bank participants and even CLO participants tend to hold significantly lower shares in risky facilities, non-CLO institutions invest significantly more in these facilities, and their share increases with a facility's credit risk.

Our paper contributes to the extant literature in many important aspects. First of all, this paper adds to the literature that examines syndicate structure (e.g. Dennis and Mullineaux, 2000; Lee and Mullineaux, 2004; Jones et al., 2005; Sufi, 2007). To the best of our knowledge, our study is the first to study the syndicate structure of securitized corporate loans. Relying on the richness of our dataset, we not only identify the factors that influence the likelihood of securitization, but also explore the determinants of the percentage of securitization in a facility, given such a large variation of this percentage among securitized loan facilities.

Moreover, the panel structure of the data allows us to track each facility from origination to several years afterwards. Compared to most of the existing studies with only cross-sectional

data at loan origination, our analysis is conducted in a panel structure, exploring both cross-sectional and over-time variations in riskiness, information asymmetries, the decision of securitization and changes in syndicate structure.

Lastly, by linking the Shared National Credit (SNC) program data with Computat, our data on securitized facilities is much more comprehensive than most of the existing studies. We are able to clearly identify a much larger sample of securitized term loans with 4,199 facilities (7,841 facility-year observations) originated during the long period between 1999-2010, compared to 302 securitized facilities in Benmelech et al. (2012) and 331 in Nadauld and Weisbach (2012). Bord and Santos (2014) use the same database and approach to identify securitized facilities with a focus on a shorter period of 2004-2008.

The rest of the paper is organized as follows. In section 2, we detail our sample construction and provide some relevant summary statistics. Section 3 presents our analysis of the decision of securitization and the percentage of securitization. Section 4 presents our results on the relationship between securitization and syndicate structure. Section 5 concludes our study.

2. Data Construction and Summary Statistics

2.1 Data source and identification of securitized loan facilities

Our loan information is obtained from Shared National Credit (SNC) program run by the Federal Deposit Insurance Corporation (FDIC), the Federal Reserve Board, and the Office of the Comptroller of the Currency (OCC). CLO entities almost always have a preference of term loans

over revolving credit lines;[2] hence we only keep term loan facilities which are then grouped into Term A facilities (usually is amortized) and Term B facilities (usually is "bullet").[3]

For each loan facility that exceeds $20 million and is jointly held by three or more federally supervised institutions, the following information is collected and updated at the end of every year: the identity of the borrower, type of credit (i.e., Term A or Term B), purpose of the loan (i.e., merger and acquisition, business recapitalization/dividends, project finance and so on), principal amount, maturity date, credit rating, names of the lead arranger and syndicate participants, and shares held by the lead arranger and each participant.[4] We have panel data on 14,370 unique facilities with 29,478 facility-year observations. The borrowers' firm level information is obtained from Compustat and then merged to our sample by matching borrower names in SNC with company names in Compustat.

We identify loan facilities sold to CLO entities either at origination or later on by filtering the syndicate participants' names. We identify 1,579 unique CLO entities if the participant's name contains "CLO" or "CDO" letters. We then get a list of CLO entities from CLO databank at structuredcreditinvestor.com (SCI) as well as Moody's CDO deal library. By doing so, we are able to obtain additional 458 unique CLO entities. We then compare the list of these entities to the syndicate participants' names to identity which participants are CLO entities. We consider

[2]See Benmelech and Dlugosz (2009), Benmelech et al. (2012), Nadauld and Weisbach (2012), and Wang and Xia (2014).

[3]Following Lim et al. (2014), we treat facilities with B or higher designation letters (e.g., C, D, and etc.) as Term B facilities, and treat term loan facilities without letter designation as Term B facilities as well.

[4]We have more Term A facilities than Term B facilities in the sample. This is mainly due to the large proportion of Term A facilities during the 1999-2005 period. The representation of Term B facilities in SNC increases after 2005, and they make up about 60% of all facilities in our sample after 2006. In robustness, we conduct all our tests using only the sub sample period during 2006-2010, and all results stay qualitatively the same. The results are available upon request.

facilities with at least one CLO participant as being securitized. The rest are classified as non-securitized facilities.

Securitization occurs rather frequently. Out of our 14,370 loan facilities originated during 1999-2010, 4,199 facilities (about 29%) are securitized either at origination or later on. Securitization occurs around 38% of the time in the Term B facilities that institutional investors often target (Nandy and Shao, 2010), and about 27% of the time in Term A facilities that are often considered bank facilities.[5] Moreover, securitization can occur for both leveraged loans and loans with investment grade ratings, although it primarily concentrates on leveraged loans. Our data suggest that about 30% of the leveraged facilities are securitized, compared to 14% of investment grade loan facilities. Once a facility is securitized, the proportion sold to CLO entities can vary a lot. The percentage of credit being sold to CLO entities ranges from 0.59% to 68.82%, among all securitized facilities in our sample.

2.2 Loan characteristics

Our sample has 4,199 unique CLO facilities (with 7,841 facility-year observations) from 1999 to 2010, 84% of these facilities are sold to CLO entities at origination and the rest are securitized afterwards. The 4,199 CLO facilities are issued by 2,055 unique borrowers, and we are able to match 715 of them to Compustat companies. In comparison, there are 10,817 non-CLO facilities (with 21,637 facility-year observations) during the sample period. These facilities are issued by 6,508 unique borrowers, and we are able to match 1,351 of them to Compustat firms.

[5]This is different from studies on loan securitization that exclude Term A facilities, such as Benmelech et al. (2012), and Wang and Xia (2014).

Table 1 compares the characteristics of securitized and non-securitized facilities. The average size of securitized facility is 2.6 times larger than the average non-securitized one. The average maturity of securitized facility is also 0.54 year longer. The average lead arranger share in securitized facilities is 4.70%, considerably smaller than the 24.28% of non-securitized facilities.

Securitized Term B facilities are slightly larger and of longer maturity than securitized Term A facilities. Both lead arranger share and total bank share are larger in securitized Term A facilities than securitized Term B facilities. The percentage of securitization is higher in Term B facilities once a facility is securitized.

Following Nadauld and Weisbach (2012) and Wang and Xia (2014), we define leveraged loan facilities as those issued by borrowers with ratings below BBB- as well as non-rated borrowers. About 98% of securitized facilities are leveraged facilities, and the percentage of securitization is larger for leveraged loan facilities than that of the investment grade facilities once securitized.

2.3. Borrower characteristics and statistics on syndicate participants

Table 2A reports borrower characteristics. 34.79% of securitized facilities are issued to public borrowers, compared to 20.76% of non-securitized facilities. On average, securitized facilities are issued by companies with larger total assets. The average Altman's Z-score for securitized facility borrowers is lower than non-securitized facility borrowers, suggesting that borrowers of securitized facilities are more likely to be in financial distress. The average distance between the borrower and the lead arranger is slightly longer for securitized facilities than non-securitized ones. There is no significant difference in stock volatility of borrowers

across the two groups. However, their credit rating distributions are quite different. 36.08% of the securitized credit borrowers do not have S&P long-term debt ratings, while a much higher 54.16% of non-securitized credit borrowers do not have S&P long-term debt ratings. Securitized facilities tend to concentrate on borrowers with BB ratings (including BB, BB+ and BB -) and B ratings (including B, B+, B-), only about 4.43% of the securitized facility borrowers have investment grade ratings (BBB- or above). On the other hand, 16.58 % of the non-securitized credit borrowers are rated as investment grade.

Table 2B shows that the number of lead arrangers per year over the sample period stays relatively stable. It is noteworthy that the number of syndicated loans held by these banks is concentrated in the top 10 largest banks, who jointly underwrite more than 50% of the loans. On the other hand, the number of unique participants, especially CLO entities is increasing rapidly over years. The number of CLO entities is only 38 in year 1999 and it dramatically increases to 1,756 entities by the year 2010. The average number of participants in a syndicate loan facility also increases significantly from about 21 participants in 1999 to about 232 participants in 2010. The average number of participants in securitized facilities is even larger than the sample average each year. By 2010, the average securitized facility has about 254 participants.

2.4 Key variables in the empirical estimation

Syndicate structure. We examine the syndicate structure by first looking at the lead arranger share, which is measured by the dollar amount of capital contributed by the lead arranger over the total proceeds of this loan facility. The second dimension we look at is total bank share, which is the aggregate dollar amount of capital contributed by all bank participants

as a percentage of the total loan facility proceeds.[6] For securitized facilities, we also examine the percentage of securitization, calculated as the percentage of capital contributed by all CLO participants over the total facility proceeds. We then examine the non-CLO institutional shares, calculated as the aggregate dollar amount of capital contributed by all non-CLO institutional investors over total proceeds of the loan facility. Using our panel data structure, we are able to observe both cross-sectional and time-series changes in these variables.

Credit risk. Our first measure is the credit quality evaluation compiled by regulatory authorities and reported in the SNC database. Bank regulators review a certain percentage of SNC loans annually, whereas the rest of the loans are either unrated or assigned the same risk rating used by the lead arranger. The credit quality of each facility is assessed. Each facility can have multiple ratings, where each rating is assigned to a portion of the total exposure. Facilities with no perceived credit problems are rated "Pass"; facilities with a minor weakness are rated "Special"; the remaining facilities are rated as "Substandard", "Doubtful" or "Loss" with increasing likelihood of bank sustaining a loss. In this paper, we use the proportion of a facility assigned non-Pass ratings (including "Substandard", "Doubtful" and " Loss") to measure credit risk, since facilities falling into these categories are more likely to default.

The second set of credit risk measures is the borrowers' long-term debt credit ratings assigned by S&P. We group S&P ratings into five categories. Category "A" includes S&P ratings of AAA, AA+, AA, AA-, A+, A, and A-. Category "BBB" includes S&P ratings of BBB+, BBB, and BBB-. Category "BB" includes BB+, BB, and BB-). Category "B" includes B+, B, and B-. Category "Other" includes S&P ratings of CCC+, CCC, CCC-, CC, and D.

[6]The bank participants are defined by the lender type variable in SNC database.

Information transparency/opaqueness. We use several variables to capture the degree of information asymmetry in a facility. First of all, required SEC filing for public firms significantly reduces the information asymmetry between the borrower and outside financers, compared to private firms (Sufi, 2007). Credit ratings provided by rating agencies contain valuable information and hence are an important mechanism to reduce information friction (Bosch and Steffen, 2011). Therefore, we view public borrowers with an S&P debt rating to be more transparent than those without such a rating. Second, a lead arranger can learn a significant amount of information about the borrower from repeated interactions over time, reducing the information asymmetry between the borrower and the bank (Boot, 2000). Moreover, the existence of a prior relationship between the borrower and the lead arranger also exposes more information to other participants in the syndicate. The third proxy of information asymmetry is the geographic distance between a borrower and its lead arranger. Petersen and Rajan (2002) argue that borrowers with good credit quality and more transparency can borrow from a distant lender, whereas more opaque companies with low quality rely more heavily on local lenders who can take advantage of collecting borrower information due to close proximity; thus, the geographic distance between the borrower and its lead arranger can be inversely related to the degree of information asymmetry. Lastly, Aboody and Lev (2000) find that firms with R&D investments can have higher information asymmetry. Following their approach, we construct an R&D firm indicator variable for firms that have reported R&D expenditures during our sample period.

3. The Decision of Securitization

This section presents two analyses: (1) what factors are related to the likelihood of certain facilities being securitized? (2) Upon securitization, what factors are related to the percentage of a facility being securitized?

Given that a large number of facilities are not securitized, factors explaining the likelihood of securitization may not be the same or have similar effects as those affecting the percentage of securitization. Following Ramalho and Silva (2009) and Papke and Wooldridge (1996), we use a two-part fraction model to estimate these two separate analyses. The first part is a probit model estimating the securitization likelihood using the full sample, while the second part is a generalized linear model estimating the percentage of securitization in the subsample of securitized facilities.

Table 3 reports the estimation of the likelihood of being securitized. The dependent variable equals one if there is a CLO entity participating in the facility for that year. Because of the panel structure, we are able to estimate the likelihood of securitization at any given year during the life of a loan facility. To control for potential industry and overall economic-wide shocks, all estimations include borrower industry, year, and lead arranger fixed effects.

From our regression results, large loan facilities with longer maturities are much more likely to be securitized. Loan type also matters. Term A facilities are significantly less likely to be securitized than term B facilities, perhaps because CLO entities prefer bullet payment in order to match the cash flows of the CLOs they underwrite. The identity of lead arrangers also has an impact on the process of securitization. Securitization-active lead arrangers are associated with a higher likelihood of securitization.

Riskier facilities are more likely to be securitized. For example, a higher proportion of the facility being assigned non-Pass ratings is associated with a higher likelihood of being securitized. Higher S&P credit ratings also lead to higher likelihoods of securitization. These results are consistent with the notion that CLO managers strategically invest in collaterals to achieve certain ratings and provide sufficient returns for their investors. Indeed, Benmelech and Dlugosz (2009) document that the majority of the CLOs have collateral pools with a weighted average credit rating of B or BB.

More importantly, we find that transparent loan facilities are much more likely to be securitized than opaque facilities that potentially have greater information asymmetry problems. For instance, public firm borrowers are associated with a much higher likelihood of securitization; on the other hand, non-rated borrowers are associated with a lower likelihood of securitization. Well established prior lending relationships between the borrower and the lead arranger also increase the likelihood of securitization. The geographic distance between the lead arranger and the borrower is positively associated with the chance of securitization. Moreover, if the company was a securitized facility borrower in the past, its new loan is also more likely to be securitized. One potential explanation of these findings is that CLO entities tend to avoid opaque facilities to minimize potential adverse selection issue, due to their very limited access to borrower information compared to the lead arrangers and other bank participants.

We then estimate the percentage of securitization conditional on a facility being securitized. According to Benmelech and Dlugosz (2009), most CLOs have restrictions on the level of concentration in loans from a single issuer, which is typically around 2%. By construction, the credit share held by any single CLO participant is very small; therefore, examining the aggregate percentage share of all CLO participants in a syndicate can reveal more

information on the process of securitization. Interestingly, we find that although higher risk leads to a higher chance of being securitized, it does not necessarily lead to higher percentage of securitization. On the contrary, we find that the percentage of securitization decreases with the proportion of the facility assigned non-Pass ratings and increases with the borrower's Altman Z-score. Moreover, although securitization tends to occur more often among speculative loan facilities, better rated facilities attract significantly more CLO participants and thus have higher percentage of securitization.

The percentage of securitization is higher in less opaque facilities. We find that both public borrowers and distant borrowers, two measures indicating less asymmetric information, are positively and significantly associated with the percentage of securitization. This again suggests that CLO entities tend to prefer more transparent facilities due to their disadvantages in getting access to borrower information.

Consistent with the argument that lead arrangers need to solicit more heavily from institutional investors when bank capital is not sufficient to fill up the facility (Ivashina and Sun, 2011; Lim et al, 2014), we find that Term A facilities have a significantly smaller percentage of securitization, conditional on a facility being securitized. Moreover, the number of bank participants in a syndicate is also negatively and significantly related to both the likelihood of securitization and the percentage of securitization. Our finding that the percentage of securitization is significantly higher if the facility is securitized at loan origination is also consistent with such a syndication process.

4. Securitization and the Syndicate Structure

4.1 Baseline analysis

Table 5 presents the analysis on the relationship between securitization and lead arranger share as well as the relationship between securitization and total bank share. We include variables capturing important characteristics of loan facilities and borrowing firms, as well as fixed effects of year, borrower industry, lead arranger and loan purpose in the regressions. The securitization indicator is always negative and significant, suggesting that both lead arranger share and total bank share are significantly lower in securitized facilities than non-securitized ones. We run additional regressions in the subgroup of Term A facilities with the majority of participants being banks, and in the subgroup of Term B facilities with many non-bank participants. Results are reported in Table 6. Securitized facilities have significantly lower lead arranger and total bank shares in both subgroups, and the marginal effect is slightly higher in Term B subgroup. Explicit controlling for the number of institutional participants (including both CLO and non-CLO institutions) does not change the results. This suggests that even in institutional investor-dominated credit facilities, CLO entities' subscription in a syndicate has a unique impact on the structure of the syndicate, and the effect can't be simply explained by the coincidence of having many institutional investors participating in the syndicates.

Other notable results are as follows: (1) both lead arranger and other bank participants tend to hold smaller shares in facilities with longer maturity, and in facilities with higher percentage of non-Pass ratings. In contrast, they tend to hold larger shares when the borrower has an investment grade credit rating; (2) lead arranger and other bank participants tend to hold larger proportions when there is greater information asymmetry, such as when the borrower is a private firm or when the borrower is not rated by S&P. They hold smaller proportions when there are previous lending relationships between the borrower and the lead arranger.

Table 7 reports our analysis on the shares held by non-CLO institutional investors, such as insurance companies, financial companies, hedge funds, mutual funds, private equity funds and others. The securitization indicator is positive and significant, suggesting that securitized facilities have significantly larger non-CLO institutional shares. The same result holds in both bank-dominated Term A facilities and institutional Term B facilities. Similar to CLO entities, non-CLO institutional investors are also more likely to invest in transparent facilities. The non-CLO institutional share is significantly larger when the borrower is a public firm with a credit rating, and when a prior lending relationship exists between the borrower and the lead arranger.

Different from CLO entities, these non-CLO institutional investors hold large proportions of risky facilities, while banks and CLO entities tend to hold relatively smaller shares. The non-CLO institutional share is higher when a facility has a larger portion assigned non-Pass ratings, and when the borrower has a lower credit rating or higher stock return volatility. This suggests that institutional investors, such as hedge fund, private equity fund, insurance companies and finance companies, play a significant role in supplying capital to riskier borrowers when both banks and CLO entities tend to invest less.

Whether the lead arranger is actively involved in the securitization business also affects the structure of the loan syndicates. We find that securitization-active lead arrangers hold significantly larger shares and they can also obtain more capital from bank participants, leading to higher total bank shares. On the other hand, securitization-active lead arrangers are associated with significantly lower contribution from institutional investors including both CLO entities and other financial institutions.

4.2. The syndicate structure of leveraged loan facilities

Institutional investors mainly participate in the leveraged loan segment of the syndicated loan market, due to the higher yield arising from higher level of risk. On the other hand, banks are generally discouraged from investing heavily in leveraged loans due to stricter bank regulations. In this section, we examine whether the distinct features in the syndicate structure of securitized loans is due to preference towards different market segments. More specifically, the concern is that the differences in syndicate structure between securitized and non-securitized facilities can reflect the differences between leveraged and investment grade facilities. Our approach to address this issue is to focus on the subsample of leveraged facilities. Having CLO entities investing in the syndicate again significantly lowers the lead arranger and total bank shares, and significantly increases the shares held by non-CLO institutional investors in this subsample. The difference remains statistically and economically significant after we control for observable borrower, facility and lead arranger characteristics. The results suggest that differences in the syndicate structure between securitized and non-securitized facilities are not entirely driven by the partition of the syndicated loan market into low risk segment and speculative high risk segment.

4.3 The effect of information asymmetry

To test the existence of a potential adverse selection issue, we examine the syndicate structure of securitized facilities, conditional on the degree of information asymmetry in the syndicate. We find that the interaction term of the securitization indicator and public borrower indicator is positive and significant in determining lead arranger share, while the securitization indicator itself is negative and significant. This result suggests that the difference in lead arranger share between securitized and non-securitized facilities becomes significantly smaller if the borrower is a public firm which has to disclose a great deal of information periodically and

presumably has less information asymmetry. On the other hand, we find the interaction term of the securitization indicator and the non-rated firm indicator is negative and significant, suggesting that the difference in lead arranger share between securitized and non-securitized facilities is larger for these public borrowers without a S&P credit rating.

We interpret the above evidence as consistent with the notion of adverse selection due to information asymmetry: lead arrangers lower their shares even more in the facilities they originate and securitize in the presence of greater information asymmetry, precisely when lead arranger monitoring is more valuable and mostly needed.

5. Conclusion

Using a comprehensive panel data set of 14,370 syndicated loan facilities, we examine the key factors related to the decision of securitization and the syndicate structure of securitized corporate loans.

Our evidence reveals that the level of riskiness and the degree of information transparency are the two key factors driving the decision of securitization and the percentage of a facility being securitized. We find that the syndicate structure of securitized facilities differs significantly from non-securitized facilities. More specifically, they tend to have lower lead arranger and total bank shares, but higher shares held by non-CLO institutional investors. This difference is not entirely driven by participants self-selecting into different segments of the syndicated loan market. The difference still exists even after taking into account the demand from institutional investors. Holding the number of institutional participants (including both

CLOs and non-CLO institutions) and bank participants constant, the presence of CLO entities among institutional participants has significant impact on the syndicate structure.

We find some suggestive evidence for the notion of adverse selection in the securitized corporate loan market. For instance, our results indicate that lead arrangers tend to hold even smaller shares in securitized facilities if the information asymmetry is greater, suggesting that lead arrangers have stronger incentive to securitize the loans if they are in possession of some negative private information.

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Appendix A: Variable Definitions

Variable	Definition	Source
Facility level		
Facility size	The total proceeds of a loan facility in thousand dollars	SNC
Maturity	Number of years before a facility matures	SNC
Non-pass	The proportion of the facility rated as "Substantial", "Doubtful" or "Loss"	SNC
No. of banks	Number of bank participants in a facility	SNC
No. of institutional participants	Number of institutional investors including CLO entities in a facility	SNC
Lead arranger share	The proportion of the facility retained by the lead arranger	SNC
Total bank share	The aggregate proportion of the facility held by all bank participants	SNC
Securitization indicator	Indicator variable equals one if there is at least one CLO entity participating in the facility	
Percentage of securitization	The aggregate proportion of the facility held by all CLO entities in the syndicate	SNC
Non-CLO institutional share	The aggregate proportion of the facility held by all non-CLO institutional investors, such as hedge funds, mutual funds, private equity funds, insurance companies and financial companies	SNC
Securitization-active lead arranger	An indicator variable equals one if the lead arranger is securitization active. A bank is considered as securitization-active if its CLO underwriting amount in the loan origination year is above the mean value of all sample banks	SNC
Borrower level		
Public	Indicator variable equals one for public borrowers	Compustat
No. of relationships	Number of syndicated loans the firm borrowed from the same lead arranger within previous five years	SNC
Prior securitized loan borrower	Indicator variable equals one if the borrower issued loan facilities that were securitized in previous five years	
Distance	The physical distance between the headquarter of the borrower and the location of the lead arranger. If the lead arranger is a branch of a bank, we use the address of that branch	SNC Compustat Google search
Total assets	The amount of borrower total book assets, measured at the beginning of the fiscal year	Compustat
R&D firm	An indicator variable equals one if Compustat reports R&D expenditure for this borrowing firm during the sample period, and zero otherwise (based on Aboody and Lev, 2000)	Compustat

Volatility	The standard deviation of daily stock returns in the previous 12 months	CRSP
Tangible ratio	The amount of PPE / total assets of the borrower, measured at the beginning of the fiscal year	Compustat
Altman's Z-score	(3.3 * Pretax Income + Sales + 1.4 * Retained Earnings + 1.2 * Net Working Capital) / Total Assets of the borrower, measured at the beginning of the fiscal year	Compustat
Non-rated firms	An indicator variable equals one if the borrower does not have a long-term debt credit rating from S&P	Compustat
Rating A	Indicator variable equals one if the borrower has a long-term debt credit rating of AAA, AA+, AA, AA-, A+, A, or A-	Compustat
Rating BBB	Indicator variable equals one if the borrower has a long-term debt credit rating of BBB+, BBB, or BBB-	Compustat
Rating BB	Indicator variable equals one if the borrower has a long-term debt credit rating of BB+,BB, or BB-	Compustat
Rating B	Indicator variable equals one if the borrower has a long-term debt rating of B+,B, or B-	Compustat
Rating other	Indicator variable equals one if the borrower has a long-term debt rating of CCC+, CCC,CCC-, CC, or D	Compustat

Table 1 Summary Statistics on Loan Characteristics

This table provides summary statistics for securitized and non-securitized loan facilities originated between 1999 and 2010. We typically have a few years of observations for each facility, and hence our data is an unbalanced panel. Variables are defined in Appendix A.

	Securitized Loans		Non-Securitized Loans	
	Mean	Median	Mean	Median
All Facilities (N=14,370)	**(N=4199)**		**(N=10,171)**	
Facility size at origination (in thousand $)	346774.8	160875	134514.3	49000
Maturity in years at origination	6	6.16	5.46	5
Lead arranger share	4.70%	0.66%	24.28%	22.22%
Total bank share	13.82%	23.82%	80.81%	89.00%
% of securitization	22.52%	19.81%	0%	0%
Term A Facilities (N=11,075)	**(N=2,942)**		**(N=8,133)**	
Facility size at origination (in thousand $)	301062.5	150000	121449.5	46000
Maturity in years at origination	6.13	6	5.52	5
Lead arranger share	5.50%	1.54%	24.03%	22.10%
Total bank share	27.07%	16.98%	80.98%	89.01%
% of securitization	22.79%	20.00%	0%	0%
Term B Facilities (N=3,295)	**(N=1,257)**		**(N=2,038)**	
Facility size at origination (in thousand $)	484195.5	222750	189954	64515
Maturity in years at origination	6.35	7	5.46	5
Lead arranger share	2.91%	0	25.36%	23.34%
Total bank share	16.62%	9.61%	80.08%	88.89%
% of securitization	32.81%	33.77%	0	0
Leveraged Facilities (N=13902)	**(N=4,132)**		**(N=9,770)**	
Facility size at origination (in thousand $)	340621.2	158000	120745.8	46000
Maturity in years at origination	6.17	6	5	5.50
Lead arranger share	4.69%	0.64%	24.62%	22.86%
Total bank share	23.61%	13.74%	80.58%	88.91%
% of securitization	26.01%	24.15%	0%	0%

Table 2 Summary Statistics on Borrower Characteristics and Syndicate Participants

Panel A reports the summary statistics on borrower characteristics. The financial ratio and credit rating variables are only available for borrowers we can link to Compustat database. Panel B reports the statistics on lead arrangers and other participants for each year during the sample period.

Panel A

	Securitized Facilities		Non-Securitized Facilities	
	Mean	Median	Mean	Median
Full Sample				
% of public firms	34.79%	n/a	20.76%	n/a
Log (distance)	6.27	6.59	6	6.44
Total assets	3913.16	1355.57	3883.75	921.78
Altman's Z-Score	1.07	1.04	1.49	1.56
Tangible ratio	0.29	0.25	0.3	0.23
Volatility	0.15	0.14	0.14	0.12
% of R&D firm	34%	n/a	31.80%	n/a
% of Non-rated firms	36.08%	n/a	54.16%	n/a
% of AAA, AA and A rated	0.57%	n/a	3.27%	n/a
% of BBB+,BBB and BBB- rated	3.75%	n/a	13.30%	n/a
% of BB+, BB and BB- rated	28.05%	n/a	16.42%	n/a
% of B+, B and B- rated	24.93%	n/a	9.42%	n/a
% of Other ratings	6.62%	n/a	3.42%	n/a

Panel B

Year	No. of unique lead arrangers	Top 10 lead arrangers aggregate market share	No. of unique participants	No. of unique CLO participants	Average No. of participants per facility	Average No. of participants per securitized facility
1999	146	57.50%	1599	38	21.69	36.12
2000	146	56.50%	1872	98	28.67	49.66
2001	143	59.60%	2057	144	37.73	61.77
2002	126	59.90%	2199	216	48.65	72.24
2003	119	60.90%	2228	258	61.68	87.53
2004	118	60.00%	2279	290	86.22	111.31
2005	123	60.00%	2408	334	107.22	127.6
2006	107	58.90%	2720	409	131.48	154.44
2007	116	61.20%	3383	546	147.2	172.08
2008	113	63.70%	4244	625	173.64	197.62
2009	145	51.40%	5852	808	197.85	233.53
2010	143	61.30%	7622	1756	232.17	254.84

Table 3 Decision of Securitization

This table reports the estimates of the probit model on the decision of securitization. The dependent variable is equal to one if a facility is securitized in a particular year and zero otherwise. Model 1 and model 2 include all facilities in our sample issued by either public borrowers or private borrowers. Model 3 includes only facilities issued by public borrowers with sufficient financial information. In each model, we control for lead arranger fixed effect, year fixed effect, industry fixed effect where industry is defined based on two-digit SIC code, and loan purpose fixed effect. The explanatory variables are defined in Appendix A.

	Model 1	Model 2	Model 3
Log (maturity)	0.400***	0.372***	0.358***
	(0.023)	(0.032)	(0.056)
Log (facility size)	0.558***	0.583***	0.608***
	(0.014)	(0.017)	(0.033)
Non-pass	0.290***	0.291***	0.343***
	(0.035)	(0.045)	(0.086)
Public	0.311***	0.235***	
	(0.025)	(0.033)	
Term A indicator	-0.225***	-0.164**	-0.249**
	(0.041)	(0.055)	(0.092)
No. of banks	-0.064***	-0.066***	-0.059***
	(0.003)	(0.003)	(0.004)
No. of relationships	0.006	0.008	0.023*
	(0.007)	(0.008)	(0.010)
Prior securitized loan borrower	1.603***	1.574***	1.367***
	(0.029)	(0.036)	(0.054)
Distance		0.034**	
		(0.011)	
Securitization-active lead arranger		0.630***	
		(0.060)	
Non-rated			-0.545***
			(0.151)
Rating A			-1.005***
			(0.246)
Rating BBB			-1.102***
			(0.181)
Rating BB			-0.016
			(0.158)
Rating B			0.152
			(0.161)
Log (total assets)			0.024
			(0.026)
Volatility			-0.437
			(0.407)
R&D firm			0.065
			(0.061)
Tangible ratio			-0.238
			(0.127)
Altman's Z-score			-0.032
			(0.018)
Intercept	-8.164***	-6.685***	-6.359***
	(0.876)	(0.971)	(1.038)
Lead arranger fixed effects	Yes	Yes	Yes
Year /Industry fixed effects	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes
Pseudo R-squared	0.49	0.49	0.47
Number of Observations	25128	13889	4836

Table 4 Percentage of Securitization

This table presents the tests on the percentage of shares held by all CLO entities in a syndicated loan facility for a particular year. We only focus on facilities with at least one CLO participant (securitized loan facilities). The percentage share held by all CLO entities can change both across facilities and over time. Model 1 and model 2 include all facilities in our sample issued by either public borrowers or private borrowers. Model 3 includes only facilities issued by public borrowers with sufficient financial information. In each model, we control for lead arranger fixed effect, year fixed effect, industry fixed effect where industry is defined based on two-digit SIC code, and loan purpose fixed effect. The explanatory variables are defined in Appendix A.

	Model 1	Model 2	Model 3
Log (maturity)	0.118***	0.126***	0.137**
	(0.026)	(0.033)	(0.044)
Log (facility size)	0.091***	0.109***	0.104***
	(0.012)	(0.015)	(0.024)
Securitized at origination	0.589***	0.656***	0.514***
	(0.038)	(0.051)	(0.060)
Non-pass	-0.393***	-0.357***	-0.309***
	(0.030)	(0.038)	(0.056)
Public	0.074***	0.01	
	(0.021)	(0.026)	
Term A indicator	-0.03	-0.003	-0.179**
	(0.031)	(0.038)	(0.057)
No. of banks	-0.050***	-0.049***	-0.056***
	(0.002)	(0.003)	(0.004)
No. of relationships	0.003	-0.001	0.007
	(0.004)	(0.005)	(0.006)
Distance		0.024*	
		(0.010)	
Securitization-active lead arranger		-0.002	
		(0.049)	
Non-rated			0.184
			(0.105)
Rating A			0.413*
			(0.191)
Rating BBB			0.158
			(0.131)
Rating BB			0.348**
			(0.106)
Rating B			0.309**
			(0.105)
Log (total assets)			-0.074***
			(0.019)
Volatility			-0.295
			(0.241)
R&D firm			0.164***
			(0.038)
Tangible ratio			0.078
			(0.077)
Altman's Z-score			0.024*
			(0.011)
Intercept	-3.087***	-4.593***	-1.971***
	(0.239)	(0.182)	(0.324)
Lead arranger fixed effects	Yes	Yes	Yes
Year/Industry fixed effects	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes
Log likelihood	3998.501	2556.612	1543.09
Number of observations	7648	4473	2301

Table 5 Effect of Securitization on Lead Arranger and Total Bank Shares: Full Sample

This table presents the tests on the percentage of shares held by lead arranger and all bank participants in a syndicated loan facility for a particular year. Lead arranger share and total bank share can change both across facilities and over time. Model 1 and model 3 include all facilities in our sample issued by either public borrowers or private borrowers. Model 2 and model 4 include only facilities issued by public borrowers with sufficient financial information. In each model, we control for lead arranger fixed effect, year fixed effect, industry fixed effect where industry is defined based on two-digit SIC code, and loan purpose fixed effect. The explanatory variables are defined in Appendix A.

	Lead Arranger Share		Total Bank Share	
	Model 1	Model 2	Model 3	Model 4
Securitization indicator	-0.120***	-0.094***	-0.423***	-0.390***
	(0.003)	(0.004)	(0.005)	(0.007)
Log (maturity)	-0.013***	-0.006	-0.044***	-0.060***
	(0.002)	(0.003)	(0.003)	(0.006)
Log (facility size)	-0.026***	-0.019***	-0.061***	-0.066***
	(0.001)	(0.002)	(0.002)	(0.003)
Non-pass	-0.011***	-0.003	-0.059***	-0.041***
	(0.003)	(0.005)	(0.005)	(0.009)
Public	-0.019***		-0.015***	
	(0.002)		(0.004)	
No. of banks	-0.005***	-0.002***	0.017***	0.016***
	(0.000)	(0.000)	(0.000)	(0.000)
No. of relationships	-0.004***	-0.002**	-0.008***	-0.008***
	(0.001)	(0.001)	(0.001)	(0.001)
Securitization-active lead arranger	0.011**		0.025***	
	(0.004)		(0.007)	
Non-rated		0.028**		0.076***
		(0.009)		(0.017)
Rating A		0.051***		0.170***
		(0.014)		(0.027)
Rating BBB		0.034***		0.129***
		(0.010)		(0.020)
Rating BB		0.013		0.045**
		(0.009)		(0.017)
Rating B		0.005		0.013
		(0.009)		(0.017)
Log (total assets)		-0.003*		-0.009**
		(0.001)		(0.003)
Volatility		0.02		-0.113*
		(0.023)		(0.044)
R&D firm		0.004		-0.011
		(0.003)		(0.007)
Tangible ratio		0.001		-0.032*
		(0.007)		(0.014)
Altman's Z-score		0.001		0.007***
		(0.001)		(0.002)
Intercept	0.789***	0.979***	1.383***	1.524***
	(0.122)	(0.124)	(0.205)	(0.242)
Lead arranger fixed effects	Yes	Yes	Yes	Yes
Year/Industry fixed effects	Yes	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes	Yes
R-squared	0.55	0.53	0.69	0.74
Adjusted R-squared	0.54	0.51	0.68	0.73
Number of observations	15455	5262	15456	5262

Table 6 Effect of Securitization on Lead Arranger and Total Bank Shares: Term A vs. Term B Facilities

This table presents the tests on the percentage of shares held by lead arranger and all bank participants in a syndicated loan facility for a particular year. Lead arranger share and total bank share can change both across facilities and over time. We compare the results across the subsamples of Term A facilities and Term B facilities. Model 1, 3, 5, and 7 include all facilities issued by either public borrowers or private borrowers. Model 2, 4, 6, and 8 include only facilities issued by public borrowers with sufficient financial information. In each model, we control for lead arranger fixed effect, year fixed effect, industry fixed effect where industry is defined based on two-digit SIC code, and loan purpose fixed effect. The explanatory variables are defined in Appendix A.

	Term A Credits				Term B Credits			
	Lead Arranger Share		Total Bank Share		Lead Arranger Share		Total Bank Share	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Securitization indicator	-0.114***	-0.094***	-0.348***	-0.343***	-0.159***	-0.101***	-0.456***	-0.357***
	(0.003)	(0.004)	(0.005)	(0.008)	(0.006)	(0.007)	(0.010)	(0.015)
Log (maturity)	-0.014***	-0.005	-0.037***	-0.048***	-0.016***	-0.007	-0.047***	-0.053***
	(0.002)	(0.004)	(0.003)	(0.007)	(0.004)	(0.007)	(0.007)	(0.014)
Log (amount)	-0.026***	-0.023***	-0.048***	-0.052***	-0.028***	-0.018***	-0.047***	-0.038***
	(0.001)	(0.002)	(0.002)	(0.004)	(0.002)	(0.003)	(0.003)	(0.007)
Non-Pass	-0.013***	-0.001	-0.055***	-0.036***	-0.006	-0.001	-0.046***	-0.029
	(0.003)	(0.006)	(0.005)	(0.011)	(0.007)	(0.009)	(0.010)	(0.018)
Public	-0.021***		-0.023***		-0.017***		-0.005	
	(0.003)		(0.004)		(0.005)		(0.008)	
No. of banks	-0.005***	-0.002***	0.018***	0.016***	-0.005***	-0.001***	0.013***	0.011***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
No. of institutional participants	0.001	0.001	-0.001***	-0.001***	0.001***	0.001*	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No. of relationships	-0.004***	-0.001	-0.006***	-0.005***	-0.004***	-0.002*	-0.009***	-0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Securitization-active lead arranger	0.008		0.011		-0.008		0.047**	
	(0.005)		(0.008)		(0.009)		(0.014)	
Non-Rated		0.019		0.047*		0.034*		0.155***
		(0.010)		(0.019)		(0.014)		(0.029)
Rating A		0.050**		0.144***		0.014		0.139**
		(0.018)		(0.032)		(0.021)		(0.046)
Rating BBB		0.032**		0.090***		0.025		0.173***
		(0.012)		(0.022)		(0.016)		(0.035)
Rating BB		0.008		0.024		0.006		0.104***
		(0.011)		(0.020)		(0.014)		(0.031)
Rating B		-0.009		0.002		0.016		0.084**
		(0.011)		(0.020)		(0.014)		(0.030)
Log (total assets)		-0.005**		-0.011***		0		0.009
		(0.002)		(0.003)		(0.003)		(0.005)
Volatility		0.051		-0.044		-0.034		-0.190*

		(0.027)		(0.050)		(0.042)		(0.090)
R&D firm		0.003		-0.003		0.014*		0.002
		(0.004)		(0.007)		(0.006)		(0.014)
Tangible ratio		0.013		-0.01		-0.028		-0.059
		(0.008)		(0.015)		(0.014)		(0.031)
Altman's Z-score		0.001		0.006**		0.003		0.014***
		(0.001)		(0.002)		(0.002)		(0.004)
Intercept	0.638***	1.082***	0.799***	1.683***	0.707***	0.377***	0.662**	1.004***
	(0.122)	(0.146)	(0.197)	(0.270)	(0.137)	(0.096)	(0.211)	(0.205)
Lead arranger fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year /Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.54	0.53	0.68	0.75	0.63	0.59	0.79	0.80
Adjusted R-squared	0.53	0.51	0.67	0.74	0.61	0.56	0.78	0.79
Number of Observations	11936	4084	11936	4084	3519	1178	3519	1178

Table 7 Effect of Securitization on Non-CLO Institutional Shares

This table presents the tests on the percentage of shares held by all non-CLO institutional investors in a syndicated loan facility for a particular year. Non-CLO institutional share can change both across facilities and over time. Model 1 and Model 2 use the full sample. Model 3 and Model 4 report the results in the subsample of Term A facilities, while model 5 and model 6 report the results in the subsample of Term B facilities. In each model, we control for lead arranger fixed effect, year fixed effect, industry fixed effect where industry is defined based on two-digit SIC code, and loan purpose fixed effect. The explanatory variables are defined in Appendix A.

	Full Sample		Term A Facilities		Term B Facilities	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Securitization indicator	0.191***	0.176***	0.195***	0.194***	0.172***	0.106***
	(0.004)	(0.007)	(0.005)	(0.008)	(0.009)	(0.014)
Log (maturity)	0.038***	0.048***	0.035***	0.043***	0.045***	0.052***
	(0.003)	(0.006)	(0.003)	(0.006)	(0.007)	(0.014)
Log (facility size)	0.051***	0.049***	0.050***	0.051***	0.051***	0.045***
	(0.002)	(0.003)	(0.002)	(0.004)	(0.003)	(0.006)
Non-pass	0.079***	0.063***	0.069***	0.051***	0.104***	0.099***
	(0.005)	(0.009)	(0.005)	(0.010)	(0.011)	(0.018)
Public	0.017***		0.020***		0.005	
	(0.004)		(0.004)		(0.008)	
No. of banks	-0.013***	-0.011***	-0.014***	-0.012***	-0.009***	-0.007***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
No. of relationships	0.006***	0.006***	0.005***	0.004**	0.009***	0.009***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Securitization-active lead arranger	-0.024***		-0.011		-0.037*	
	(0.007)		(0.008)		(0.015)	
Non-rated		-0.093***		-0.042*		-0.190***
		(0.016)		(0.019)		(0.029)
Rating A		-0.201***		-0.157***		-0.236***
		(0.026)		(0.031)		(0.045)
Rating BBB		-0.157***		-0.107***		-0.247***
		(0.019)		(0.022)		(0.035)
Rating BB		-0.092***		-0.048*		-0.162***
		(0.017)		(0.020)		(0.031)
Rating B		-0.061***		-0.013		-0.140***
		(0.017)		(0.020)		(0.030)
Log (total assets)		0.020***		0.022***		0.007
		(0.003)		(0.003)		(0.005)
Volatility		0.154***		0.107*		0.091
		(0.042)		(0.049)		(0.089)
R&D firm		-0.004		-0.003		-0.014
		(0.006)		(0.007)		(0.013)
Tangible ratio		0.025		0.006		0.046
		(0.013)		(0.015)		(0.031)
Altman's Z-score		-0.006***		-0.005**		-0.015***
		(0.002)		(0.002)		(0.004)
Intercept	-0.053	-0.382	-0.432*	-0.607*	0.242	-0.291
	(0.198)	(0.231)	(0.197)	(0.261)	(0.206)	(0.199)
Lead arranger fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year/Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.49	0.55	0.48	0.57	0.56	0.59
Adjusted R-squared	0.48	0.53	0.47	0.55	0.54	0.56
Number of Observations	15455	5262	11936	4084	3519	1178

Table 8 Securitization and Syndicate Structure: Leveraged Loan Facilities

This table presents the tests on the syndicate structure in the subsample of leveraged loan facilities. The dependent variable in Model 1 and Model 2 is the percentage share held by the lead arranger. The dependent variable in Model 3 and Model 4 is the aggregate percentage share held by all bank participants. The dependent variable in Model 5 and Model 6 is the aggregate percentage share held by all non-CLO institutional investors. Lead arranger share, total bank share and non-CLO institutional share can change both across facilities and over time. In each model, we control for lead arranger fixed effect, year fixed effect, industry fixed effect where industry is defined based on two-digit SIC code, and loan purpose fixed effect. The explanatory variables are defined in Appendix A.

	Lead Arranger Share		Total Bank Share		Non-CLO Institutions Share	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Securitization indicator	-0.120***	-0.095***	-0.418***	-0.380***	0.185***	0.166***
	(0.003)	(0.004)	(0.005)	(0.007)	(0.005)	(0.007)
Log (maturity)	-0.012***	-0.006	-0.041***	-0.062***	0.035***	0.049***
	(0.002)	(0.003)	(0.003)	(0.007)	(0.003)	(0.006)
Log (facility size)	-0.026***	-0.018***	-0.064***	-0.069***	0.053***	0.051***
	(0.001)	(0.002)	(0.002)	(0.004)	(0.002)	(0.004)
Non-pass	-0.010***	-0.002	-0.057***	-0.040***	0.077***	0.061***
	(0.003)	(0.005)	(0.005)	(0.010)	(0.005)	(0.009)
Public	-0.020***		-0.020***		0.021***	
	(0.002)		(0.004)		(0.004)	
No. of banks	-0.005***	-0.002***	0.018***	0.017***	-0.014***	-0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No. of relationships	-0.004***	-0.002***	-0.008***	-0.008***	0.006***	0.007***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Securitization-active lead arranger	0.013**		0.029***		-0.028***	
	(0.004)		(0.007)		(0.007)	
Non-Rated		0.028**		0.076***		-0.094***
		(0.009)		(0.017)		(0.016)
Rating BB		0.014		0.045*		-0.093***
		(0.009)		(0.018)		(0.017)
Rating B		0.006		0.015		-0.063***
		(0.009)		(0.018)		(0.017)
Log (total assets)		-0.006***		-0.013***		0.025***
		(0.002)		(0.003)		(0.003)
Volatility		0.02		-0.107*		0.148***
		(0.023)		(0.046)		(0.044)
R&D firm		0.003		-0.005		-0.012
		(0.004)		(0.007)		(0.007)
Tangible ratio		0.008		-0.031*		0.017
		(0.008)		(0.015)		(0.014)
Altman's Z-score		0.001		0.007***		-0.006***
		(0.001)		(0.002)		(0.002)
Intercept	0.638***	0.127	1.256***	1.250***	0.299	-0.346
	(0.122)	(0.146)	(0.202)	(0.288)	(0.202)	(0.276)
Lead arranger fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year/Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.55	0.54	0.69	0.74	0.49	0.55
Adjusted R-squared	0.55	0.53	0.68	0.73	0.48	0.53
Number of Observations	14940	4705	14942	4705	14943	4705

Table 9 Role of Information Asymmetry

This table reports the effect of securitization on lead arranger share conditional on whether the borrower is a public or private firm, and whether the public borrower has S&P credit ratings on its existing long-term debt. Model 1 use all facilities issued by either public borrowers or private borrowers. Model 2 uses only facilities issued by public borrowers. In each model, we control for lead arranger, year, industry fixed effect where the industry is defined based on two-digit SIC code. The explanatory variables are defined in Appendix A.

	Lead Arranger Share	
	Model 1	Model 2
Securitization indicator	-0.140***	-0.076***
	(0.004)	(0.005)
Public	-0.033***	
	(0.003)	
Securitization indicator * Public	0.041***	
	(0.005)	
Non-rated	0.033**	0.052***
	(0.011)	(0.011)
Securitization indicator*non-rated		-0.034***
		(0.006)
Log (maturity)	-0.014***	-0.005
	(0.002)	(0.003)
Log (facility size)	-0.025***	-0.019***
	(0.001)	(0.002)
Non-pass	-0.011***	-0.002
	(0.003)	(0.005)
No. of banks	-0.005***	-0.002***
	(0.000)	(0.000)
No. of relationships	-0.004***	-0.002**
	(0.001)	(0.001)
Securitization-active lead arranger	0.011**	
	(0.004)	
Rating A		0.063***
		(0.015)
Rating BBB		0.009
		(0.011)
Rating BB		0.02
		(0.011)
Rating B		0.048***
		(0.012)
Volatility		0.015
		(0.023)
R&D firm		0.003
		(0.003)
Tangible ratio		0.002
		(0.007)
Log (total assets)		-0.003*
		(0.001)
Altman's Z-score		0.001
		(0.001)
Intercept	0.633***	0.943***
	(0.123)	(0.124)
Lead arranger fixed effects	Yes	Yes
Year/Industry fixed effects	Yes	Yes
Loan purpose fixed effects	Yes	Yes
R-Squared	0.55	0.53
Adjusted R-squared	0.55	0.52
Number of Observations	15452	5262