The Effect of Banks' Financial Reporting on Syndicated Loan Structures

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Abstract

The delegation by syndication loan participants of loan screening and monitoring to lead lenders to avoid duplicate effort creates information asymmetry and associated agency problems between the lead arrangers and participants. Syndicated loan structures are designed to mitigate these information problems. These problems might also be affected by the lead arrangers financial reporting. We examine whether lead arrangers' loan loss provision accounting information affects loan syndication structures. We hypothesize and find that, when lead arrangers' loan loss provision can better capture subsequent charge offs (i.e., higher provision validity), lead arrangers retain lower fractions of syndicated loans and the propensity of having multiple lead arrangers is lower in a syndicate. We further find that the importance of lead arrangers' accounting information on syndication structures is attenuated by lead arrangers' previous syndicating relationships with participating banks, participants' previous lending relationships with the borrower, and lead arrangers' past lending relationships with the borrower. Our study contributes to the literature by exploring how information asymmetry between lead arrangers and participating banks influences syndication structures.

1. Introduction

Syndicated loan participants delegate loan screening and monitoring to the lead arrangers to avoid duplication of effort (Leland and Pyle, 1997; Diamond, 1984). However, the delegation of these activities results in information asymmetry and associated agency problems between the lead arrangers and participants because lead arrangers acquire information about borrowers' creditworthiness in the screening and monitoring process that is not directly observable by the participants.[1] To mitigate these information problems, lead arrangers tend to retain a significant fraction of the loans they syndicate (Ball et al., 2008). We study the previously unexplored questions of whether and how lead arrangers' accounting information addresses these agency conflicts in syndicated loans.

Participants may value lead arrangers' financial reporting quality if they use lead arrangers' accounting information to evaluate their underwriting and monitoring effectiveness of loans before joining the syndicate. Specifically, the loan loss provision, which is identified as the largest bank accrual by Beatty and Liao (2014), may provide information about the lead arranger's ability to properly assess borrowers' credit losses on average as well as about the lead arranger's own credit risks, both of which may be important for participants to assess lead arrangers' underwriting and monitoring effectiveness. We follow Altamuro and Beatty (2010) and the Staff Accounting Bulletin (SAB) 102 that states that valid provisioning should reduce the difference between estimated losses and subsequent charge offs by measuring lead arrangers' financial

[1] For example, when the borrower is in distress, the lead arranger may prefer to negotiate with the borrower for the borrower to survive either to protect its own ongoing lending relationship with the borrower or to avoid damaging its reputation, although this may be suboptimal from participants' perspective (Dass et al., 2012). Consistent with this argument, participants of loans issued by Enron accused JP Morgan Chase, the lead arranger, of concealing deteriorating financial conditions and using part of proceeds to lower its own exposure to Enron.

reporting quality as the extent to which current loan loss provisions capture future loan charge offs (i.e., provision validity). We contend that if lead arrangers' provision quality or validity is low, participants are less able to assess lead arrangers' monitoring and screening ability using this accounting information and therefore face higher information asymmetry, which may prevent participants' investments in the syndicated loans. As a potential solution to this information problem, lead arrangers may be required to retain larger portions of loans to assure their due diligence in screening and monitoring the borrower. Alternatively, there can be more than one lead arranger required in the syndicate either to monitor the main lead arranger or to assist in the screening and monitoring task (Francois and Missonier-Piera, 2007).

We also expect the impact of provision validity on syndicate structures to vary cross-sectionally depending on various prior lending relationships. For example, we argue that a lead arranger's accounting information is less important if the participants have previous syndicating relationships with the lead arranger. That is, lead arranger's accounting information becomes less important when participants have less uncertainty about the lead arranger's screening and monitoring effectiveness. In addition, because the information asymmetry between the lead lender and participants depends on participating banks' knowledge about the borrower, we expect the importance of accounting information in addressing lead lender-participant information problems to be lower when participating banks have participated in loans for the same borrower in the past. Finally, based on Sufi (2007) and Bharath et al. (2011), the moral hazard concern becomes less serious when the lead lenders have established a lending relationship with the same borrower in the past. As a result, we expect the importance of accounting information in

addressing lead arranger-participant information problems to be lower when lead arranger and the borrower have previous lending relationships.

Using 5,355 syndicated loan packages (6,706 loan facilities with 7,950 facility-lead arranger pairs) syndicated by the U.S. commercial banks from 1993 to 2010, we find results consistent with our predictions. First, we find that the proportion of loans retained by the lead arrangers decreases with lead arrangers' provision validity. Second, the likelihood of loan syndicates containing two or more lead lenders also decreases with the provision validity. These findings on average are consistent with the notion that participating banks or investors rely on lead arrangers' accounting information when deciding to take part in the syndicates and that lead arranger's accounting information addresses lead arranger-participant information problems.

Also consistent with our predictions, we find the negative association between provision validity and lead lender shares of loans and the likelihood of having multiple lead lenders to be attenuated when the participating banks have previous syndicating relationships with the same lead lender, when the lead lenders have lent to the same borrower and when the participants were on the syndicates for the same borrower in the past. All these cross-sectional findings are further supportive of the notion that accounting information is used to mitigate information asymmetry between lead arrangers and participants and therefore affects the loan structure.

In an additional analysis, we also use the SEC comment letters regarding loan loss allowances as an alternative proxy for financial reporting quality to mitigate the concern that our provision validity measure might contain measurement errors. We argue that participating banks' perception of lead arrangers' accounting quality decreases after the

disclosure of the SEC comment letters. We find that compared to control firms matched by lead arranger size, borrower size and loan interest spreads, both lead arranger loan shares and the likelihood of having more than one lead arranger in a syndicated loan increase after the disclosure of SEC comment letters. This finding further supports the notion that accounting information plays an important role in addressing information problems and for banks in making their participation decisions.[2]

This study makes several contributions to the literature. Our study expands the literature associating accounting quality with debt contracting. Ball et al. (2008) find that the debt contracting value of *borrowers'* accounting information mitigates information asymmetry between lead arrangers and participants and thereby reduces the proportion of loans retained by lead arrangers. Our study differs from theirs by providing evidence that participating banks not only depend on borrowers' accounting information in assessing differences in information between themselves and lead lenders, they also use lead lenders' accounting information to directly evaluate the monitoring effectiveness.

Our study is also related to the research discussing the determinants of syndication structures. This literature has long focused on how borrowers' creditworthiness and financial condition affect loan contracting. For example, Sufi (2007) finds that lead lenders retain a larger fraction of the loan if the borrower has a worse credit or a worse information environment. We add to this literature by documenting that participating banks may also use lead arrangers' accounting information to assess their participation in the syndication. Our study also examines a debt contract feature that prior studies have not explored extensively, i.e., multiple lead arrangers, when studying loan

[2] While SEC comment letters can mitigate measurement error issue if the SEC can correctly identify the accounting issues related to banks loan loss provisions, the sample is too small for further cross-sectional analyses.

characteristics. Our evidence on the incident of multiple lead arrangers is more consistent with the argument that additional lead arrangers are added to improve monitoring efficiency than with the argument that multiple lead lenders worsen the lead arranger-participant information asymmetry by collusion.

Finally, this study broadens our understanding of economic consequences of banks' loan loss provisions information. The literature on loan loss provisions has focused on the two potential roles of provisions. Provisions are likely used to convey management's private information to the market to mitigate information asymmetry (e.g., Beaver and Engel, 1996; Wahlen, 1994) or are used opportunistically for capital or earnings management (e.g., Collins et al., 1995; Beatty et al., 1995). Our study extends this literature by documenting that participating banks in a syndicate use lead arrangers' provision to mitigate information problems and that provisions have real economic effects by affecting syndicate structures. Given the importance of banks' role in providing capital to other sectors (Beatty and Liao, 2014), it is important to understand this effect of banks' financial reporting on the capital provision process.

The rest of the paper is organized as follows. Section 2 provides background for our study and prior literature. We motivate our hypotheses in section 3. We describe our sample and research design in Section 4. We discuss our empirical results in Section 5 and conclude in Section 6**.**

2. Background and Literature Review

2.1 Information Asymmetry in Syndicated Loans

A syndicated loan is a loan where there are multiple banks jointly offering funds to a borrowing firm. The importance of syndicated loans in providing capital to corporates has increased drastically in the past several decades (Sufi, 2007). The "lead arranger" is the bank that develops a relationship with the borrowing firm, negotiates terms of the contract, and guarantees an amount for a price range to the borrower. The lead arranger then finds other syndicate members or participating banks to fund part of the loan (Taylor and Sansone, 2007). Lead arrangers form syndications to avoid the regulatory lending restrictions and limit the exposure to individual borrowers (Simons, 1993; Ball et al., 2008). Specifically, loans to a single borrower cannot exceed 15% of a bank's capital for uncollateralized loans or 25% for collateralized loans (Ivashina, 2009; Beatty et al., 2012). Lead arrangers screen the borrowers and monitor the borrower's compliance with contractual terms on behalf of the syndicate. Lead arrangers also act as administrative agents in collecting payments and renegotiating debt terms. In the process of the due diligence, lead lenders acquire public and private information about the borrower on an on-going basis and choose appropriate information to share with syndicate members (Taylor and Sansone, 2007).

Participating banks face two types of information asymmetry in a syndicated loan: information asymmetry between borrowers and lenders and information asymmetry between lead arrangers and syndicate members. Because of the information asymmetry between lead arrangers and participating banks and because the monitoring efforts by lead arrangers are not directly observable, agency problems arise when lead arrangers' screening and monitoring efforts are not aligned with syndicate member banks' interests. To overcome this agency problem, lead lenders are required to hold a significant

proportion of the loans to ensure that they have incentives to monitor the borrower (Sufi, 2007).

Prior debt contracting studies have mostly focused on how information asymmetry between borrowers and lenders affects debt contracting. For example, Bharath et al. (2008) and Francis et al. (2005) find that borrower's accounting quality mitigates information asymmetry between borrowers and lenders and thus reduces the borrower's interest rate. Zhang (2008) and Beatty et al. (2008) examine the relation between accounting conservatism and loan terms such as interest rates and debt covenants. Further, Sufi (2007) finds that lead arrangers' share of loans increases with borrowers' credit risk and information opacity, suggesting that participants require lead arrangers to have more "skin in the game" when the information problem between the borrower and lenders is greater.

Fewer studies have focused on the information asymmetry among lenders. Ball et al. (2008) argue that borrowers' accounting information has the potential to mitigate information problems among lenders. Specifically, participants may use borrowers' accounting information to assess lead arrangers' screening efforts to mitigate adverse selection, a concern that privately informed lead arrangers may attempt to sell them low quality loans while keeping good loans for themselves. In addition, borrowers' accounting information also helps participating banks to gauge lead arrangers' monitoring effectiveness to overcome potential shirking by lead arrangers.

Syndicate members also value lead arrangers' reputation in screening and monitoring borrowers when making investment decisions. Gopalan et al. (2011) find supporting evidence that large-scale bankruptcies among a lead arranger's borrowers

damage lead arrangers' reputation. As a result, such lead arrangers are required to hold more loans they syndicate, are less likely to syndicate, and are less likely to attract participant lenders. Further work related to bank reputation is provided by Ross (2010) who argues that banks' reputations can certify borrowers' creditworthiness to capital market participants. Our study differs from this literature by considering how lead arrangers' financial reporting can also address information asymmetry between the lead arranger and other syndicate members by providing information that participating banks may use to evaluate lead arrangers' screening and monitoring effectiveness.

In addition to requiring a lead arranger to retain a larger fraction of loans, multiple lead arrangers may exist to further address the adverse selection and moral hazard issues. Consistent with the argument provided in Francois and Missonier-Piera (2007), there can be more than one lead arranger in the syndicate either to monitor the main lead arranger or to assist in the screening and monitoring task. They find results consistent with both explanations. However, in addition to these two possible explanations, it is also possible that multiple lead arrangers collude, thereby increasing the lead arranger-participant information asymmetry. Our study aims to broaden our understanding of how this interesting loan structure feature is affected by lead arranger-participant information asymmetry and attempts to shed light on the distinction among these explanations.

2.2 Bank Accounting for Loan Loss Provision and Its Information Content

The current accounting standard governing loan loss provision is FAS 114, which provides specific guidance for loans individually deemed to be impaired when it is probable that not all interest and principal payments will be made as scheduled. FAS 114 requires that impaired loans be measured based on the present value of expected future

cash flows discounted at the loan's effective interest rate or at the loan's observable market price or the fair value of the collateral if the loan is collateral dependent. The purpose of this loan loss recognition is to reflect change in management's expectations of future loan losses. Therefore loan loss provisions are generally discretionary (Beatty and Liao, 2014).

The degree of discretion in provisioning depends on loan compositions. Liu and Ryan (2006) argue that for homogenous loans (e.g., consumer loans), loan loss provisions are determined using statistical models on the portfolio basis, while for heterogeneous loans (e.g., commercial loans) provisions are usually determined based on bankers' judgments on a loan-by-loan basis. Therefore, loan loss provisions are more discretionary for heterogeneous loans compared to homogenous loans (Liu et al., 1997). This discretionary nature of provisioning for homogenous versus heterogeneous loans is furthered by the difference in recognition of charge offs. Homogenous loans are usually charged off based on the numbers of days past due. Based on Federal Financial Institutions Examination Council's (1999) guidance on charge offs for consumer loans, charge offs practice ranges from 120 to 240 days past due depending on the type of loan.[3] In contrast, heterogeneous loans are charged off based on management's judgment.

This discretion in provisioning especially for heterogeneous loans provides management with a means to convey private information and future loan loss estimates to mitigate information asymmetry (e.g., Beaver et al., 1996; Wahlen, 1994) or can be used opportunistically by management (e.g., Beatty et al., 1995; Collins et al., 1995). Therefore, the private information contained in provisions can be used by investors or

[3] For example, in Bank of America, for non-bankrupt credit card loans, real estate secured loans, and open-end unsecured consumer loans are charged off no later than 180 days past due. Personal property secured loans are charged off no later than 120 days past due.

syndicate participants to assess lead banks' future loan losses and to infer the lead arrangers' ability to properly monitor and assess credit risk. However, opportunistic provisioning or noise may garble private information and prevent loan loss provisions from communicating such important information to investors. As discussed later in Section 3, we use the extent of loan loss provisions mapping into future charge off as an accounting quality measure to capture how investors or participating banks can use provision information to infer lead arrangers' monitoring and credit quality.

3. Hypothesis Development

When deciding to participate in a syndicated loan, potential investors may want to investigate whether lead arrangers can provide appropriate screening and monitoring of borrowers. Because these screening and monitoring efforts are not directly observable to these potential participants, both adverse selection and moral hazard problems arise. To address these problems, potential participants may use lead arranging banks' financial reporting and disclosure to assess their underwriting and monitoring ability. For example, potential participants may rely on loan loss provisions, allowances, charge offs, nonperforming loans, and other credit risk disclosure to indirectly infer whether the lead arrangers' loan management is appropriate and whether lead arrangers will persistently provide diligent monitoring.

If financial reporting is of low quality, then potential participants face higher uncertainty and cannot accurately evaluate lead arrangers' ability. As a result, lead arrangers may be required to hold a larger fraction of loans to ensure that lead arrangers' interests are aligned with participating banks' interests and have adequate incentives to

monitor the borrower. Alternatively, participating banks may delegate another bank to serve as a co-lead arranging bank to either monitor the main lead arranger or to share the monitoring tasks (Francois and Missonier-Piera, 2007). In contrast, if multiple lead arrangers are more likely to collude than to monitor each other, thereby exacerbating lead arranger-participant informational problems, then we expect the incident of multiple lead arrangers to decrease with lead arrangers' financial quality.

We focus on loan loss provision, which is identified by Beatty and Liao (2014) as banks' largest operating accrual, to capture the lead arranger's financial reporting quality. The importance of this provision or loan loss allowance information to investors is reinforced by the OCC's statement (2012) that the SEC is concerned about the accuracy of the loan loss provision and allowance because of investors' and analysts' reliance on this information in assessing a bank's credit risk. In addition, the OCC (2012) also suggests that the evaluation of banks' provision information depends on whether "the bank maintains effective systems and controls for identifying, monitoring, and addressing asset quality problems," further linking loan loss provision accounting to lead arrangers' underwriting and monitoring effectiveness. In light of these arguments, our accounting quality proxy is the "provision validity," which we measure as the extent to which provisions capture subsequent charge offs based on Altamuro and Beatty (2010) and the SEC SAB 102 guidance for validating the method used to estimate loan losses that states:

> *The staff believes that a registrant's loan loss allowance methodology is considered valid when it…. Include(s) procedures that adjust loan loss estimation methods to reduce differences between estimated losses and actual subsequent charge-offs.*

Based on these discussions, our first hypothesis H1 is stated in the alternative fashion as the following.

H1: Each of the fraction of loans retained by the lead arranger and the likelihood of multiple lead arrangers in a syndicated loan decreases with provision validity.

Based on H1, we also expect this effect of accounting information on syndicate structures to be less important if the information asymmetry between the lead arranger and syndicate members is lower. Specifically, when the participants have previous syndicating relationships with the lead arranger, the participants should know more about the lead arranger's ability from the prior experiences and therefore rely less on lead arrangers' accounting to mitigate information asymmetry. Based on this reasoning, our second hypothesis is as the following.

H2: The impact of provision validity on lead arranger loan share and likelihood of multiple lead arrangers is dampened if the relationship between lead arrangers and syndicate members is strong.

Following H2, because the information asymmetry between lead arrangers and participants depends on participants' knowledge about the borrower or the information uncertainty about the borrower, we expect the importance of accounting information in addressing lead lender-participant information problems to be lower when participating banks have participated in loans for the same borrower in the past. Specifically, if syndicate members have acquired knowledge about the borrowers from previous lending relationships, then they can better distinguish whether the lead arranger is selling them bad loans in the first place and whether the lead arranger is performing monitoring appropriately. Accordingly, our third hypothesis is as follows.

H3: The impact of provision validity on lead arranger loan share and likelihood of multiple lead arrangers is dampened if syndicate members have participated in past loans to the same borrower.

Finally, Sufi (2007) and Bharath et al. (2011) argue that the moral hazard problem is less serious within a syndicate if a lead arranger has established a previous

lending relationship with the same borrower because the incremental monitoring cost will be lower. In this situation, because participants are less concerned about the moral hazard issue, the importance of lead arrangers' accounting information to address the information problem becomes lower. While lead arrangers' previous lending relationships have a potential to mitigate moral hazard problems, they may exacerbate the adverse selection concern because the lead arranger has larger information advantage about the borrower relative to loan participants (Sufi, 2007). In that case, the lead arrangers' own financial reporting quality may not be relevant or become more important. Our final hypothesis is stated in the alternative fashion consistent with the moral hazard argument as follows.

H4: The impact of provision validity on lead arranger loan share and likelihood of multiple lead arrangers is dampened if lead arrangers had a lending relationship with the same borrower in the past.

4. Research design

4.1 Sample

We use the Loan Pricing Corporation's Dealscan database, COMPUSTAT, and Call reports for commercial banks to construct our sample. We obtain comprehensive information about syndicated loan contracts from Dealscan for the period from 1993 to 2010. In addition to the characteristics of loan contracts, Dealscan also provides lender-specific and syndication-specific information including lender names, locations, institutional types, lender roles, and percentage of loans retained by each lender within the syndications. We follow Sufi (2007) by using the "lead arranger credit" information

provided by Dealscan to identify lead arrangers.[4] We link Dealscan with Call reports to obtain financial reporting information for lead lenders that are also U.S. commercial banks.[5] To ensure the link between these databases is accurate, we rely on the historical information for financial institutions provided by National Information Center to account for the bank merger and acquisition activities during our sample period. Finally, we obtain borrower characteristics from COMPUSTAT.

Our final sample consists of 5,355 syndicated loan packages (6,706 loan facilities with 7,950 facility-lead arranger pairs) for 2,468 borrowers syndicated by 125 commercial banks as lead arrangers with all available information.[6] In our main analysis, we view each facility-lead arranger pair as an observation. That is, in a loan deal where there are multiple lead arrangers, we do not distinguish among the lead arrangers and treat them as separate observations. In additional analyses, we pick the one retaining the largest proportion of loan shares as the main lead arranger and allow each facility to have only one observation. Alternatively, we also average all independent variables and loan ownership variable across multiple lead arrangers as another robustness check.

4.2 Research Design

We use model (1) to examine the impact of lead arrangers' accounting quality on loan syndication structures.

$$\begin{aligned} \textit{Syndication structure}_{i,j} = {} & \delta_0 + \delta_1 \textit{VALID}_j + \delta_2 \textit{Lender characteristics}_j + \\ & \delta_3 \textit{Borrower characteristics}_i + \delta_4 \textit{Loan characteristics}_i + \upsilon_{i,j} \end{aligned} \quad (1)$$

[4] That is, a bank is classified as a lead arranger in our sample if its "lead arranger credit" is "Yes".
[5] U.S. commercial banks arranged 84% of total facilities.
[6] One loan package may contain multiple loan facilities. 79% of our sample loan packages have only one facility and 18% of our sample loan packages have two facilities. We conduct our analysis at each facility - lead arranger level because a lead arranger may retain different portions for different facilities. Our results are similar if we conduct the analysis at the loan package level.

Our main test variable is VALID, which measures how well a bank's current quarter loan loss provisions predict future charge offs, i.e., provision validity. Following Altamuro and Beatty (2010), for each bank quarter, we estimate the following regression using information from the bank's past 20 quarters on a rolling basis with a requirement of nonmissing information for at least 12 quarters. Specifically, VALID is measured as the coefficient β in the following equation:

$$ChargOff_{t+1} = \alpha + \beta * Provison_t + \gamma * NONACC_{t,}$$

Where *Provision* is loan loss provision for quarter *t* divided by the beginning balance of total loans. $NONACC_t$ is the total nonaccrual loans at the end of quarter *t* divided the beginning balance of total loans. $ChargOff_{t+1}$ is the average net charge off for the next 4 quarters divided by the balance of total loans at the end of quarter *t*.[7] Higher VALID suggests that provisions map into future charge offs to a higher extent and suggests that the bank assesses the credit quality of its existing loan portfolios more accurately. If the lead arranger's VALID is higher before syndicating a new loan, then participants can better use provision information to infer a lead arranger's screening and monitoring of borrowers and its own credit risk.

We focus on two aspects of syndication structures as our dependent variables in model (1) – the lead arranger ownership of loans ($SHARE\_LEAD_{i,j}$) measured as the percentage of loan facility *i* retained by lead arranger *j* and the joint lead arranger structure ($JOINT\_LEAD_i$) measured as an indicator variable that equals 1 if multiple banks serve as lead arrangers simultaneously for loan *i*. Based on previous research, lead arrangers retain a higher proportion of loans when information asymmetries between

[7] We also try one quarter and four quarter ahead charge offs as alternative dependent variables to construct VALID, and most results continue to hold.

borrowers and lenders are more severe and when lead arrangers cannot credibly commit to perform due diligence because their monitoring effort is unobservable (Sufi 2007; Ball et al. 2008). In addition, Francois and Missoier-Piera (2007) find evidence supporting the argument that multiple lead arrangers exist to improve monitoring efficiency. Therefore, based on H1, we expect δ_1 to be negative in model (1) for each measure of syndication structure.

We control for a wide array of lender characteristics, borrower characteristics, and loan characteristic in model (1). The first set of control variables includes common lead arranger characteristics such as bank size, leverage, profitability, and asset structures. SIZE _L is the natural log of the lead arranger's total assets at the end of the quarter right before the loan initiation. LEV_L is the total liabilities divided by total assets. We use the ratio of loans relative to total assets LOAN_L to control for lead arrangers' concentration in the traditional lending business and the ratio of non-accrual loans to total loans NONACC_L to control for overall on-the-balance-sheet loan quality. ROA_L is earnings before extraordinary items divided by beginning balance of total assets. We further use whether the lead arrangers is rated (RATED_L) and lead arranger's credit rating (SPRATE_L) to control for lead arranger's own default risk.[8] Finally, we control for the standard deviation of quarterly charge offs (CHARGESTD_L) to account for the possibility that higher VALID estimate is driven by the lower volatility of net charge offs and to control for operation risk.

The second set of control variables includes borrower characteristics that previous literature (e.g., Ball et al., 2008) finds important in determining syndication structures.

[8] Because most banks are only rated at the holding company level, this variable represents whether the holding company is rated or not.

Specifically, we control for borrower size, leverage, profitability, and growth. Detailed definition of variables is provided in Appendix. We control for the borrower's credit quality using an indicator variable for whether the borrower is rated and, if rated, the borrower's credit rating.

The third set of control variables includes various loan characteristics. For example, we control for the loan amount relative to the borrower's total assets, loan maturity, whether the facility is a term loan, whether the loan has collateral, and the number of financial covenants. We use number of lenders to control for the size of syndication. We also include the natural log of the loan spread above LIBOR to control for the overall credit risk of the loan. We expect the coefficient on the LIBOR spreads to be positive. Finally, we control for the loan amount relative to lead arranger's capital (AMT_CAPITAL). FDIC requires that a commercial bank may not extend more than 15% of its capital to a borrower without fully secured by marketable collaterals.[9] Therefore, we expect AMT_CAPITAL to be negatively (positively) associated with SHARE_LEAD (JOINT_LEAD).

We use model (2) to examine whether the impact of lead arrangers accounting quality on loan syndication structures varies depending on various lending relationships.

$$Syndication\ structure_{i,j} = \gamma_0 + \gamma_i\, VALID_j + \gamma_2\, RELATION_{i,j} + \gamma_3\, VALID*RELATION_{i,j} + \gamma_4\, Lender\ characteristics_j + \gamma_5\, Borrower\ characteristics_i + \gamma_6\, Loan\ characteristics_i + \omega_{i,j} \quad (2)$$

[9] FDID states that "a national bank's or savings association's total outstanding loans and extensions of credit to one borrower may not exceed 15 percent of the bank's or savings association's capital and surplus, plus an additional 10 percent of the bank's or savings association's capital and surplus, if the amount that exceeds the bank's or savings association's 15 percent general limit is fully secured by readily marketable collateral".

The specification of model (2) is similar to model (1) except that our inference is drawn from the estimated coefficient of the interaction term γ_3. We expect that the impacts of VALID on the two syndication structures to vary along three dimensions of lending relationships.

The first attenuating lending relationship that may affect the importance of lead arranger's accounting information is between lead arrangers and participating lenders. For each pair of lead arranger and participating lender within a loan package, we count the total number of unique loan packages originated during the year before the current loan is initiated involving the two parties. We then add up the number of previous pairings across all participating lenders and divide it by the number of lenders within the syndication to measure the average previous lending relationships between a lead arranger and participating lenders. PART_LEAD is then measured as an indicator that equals 1 if the average lending relationship between lead arrangers and participating lenders is above the sample median and 0 otherwise. Based on H2, we predict the estimated coefficient on VALID*PART_LEAD to be negative.

The second attenuating lending relationship we investigate is between a borrower and the lending participants in a given loan. BORROWER_PART is measured as an indicator variable that equals 1 if at least one of the loan participants in the current deal has participated in loans for the same borrower during the past three years. Based on H3, we expect to find a negative coefficient for VALID*BORROWER_PART in model (2). The last lending relationship that may attenuate the importance of lead arranger's accounting information is between a borrower and its lead arrangers. We construct an indicator variable BORROWER_LEAD that equals 1 if the lead arranger in the current

lead has served as the lead arranger for the same borrower during the past three years. Based on H4, we expect the coefficient on VALID*BORROWER_LEAD to be negative, suggesting that past lending relationships between the borrower and the lead bank lower the moral hazard concern, thereby lowering the importance of lead arrangers' accounting quality. However, if previous lending relationship increases lead arrangers information advantage about the borrower and loan participants are more concerned about heightened adverse selection, lead arranger's own accounting quality may not be relevant.

5. Empirical results

5.1 Descriptive Statistics

Table 1 reports descriptive statistics for our main variables. We find that lead arrangers retain 21.5% of loans on average for our sample. We find 29.5% of our sample facilities have more than 1 lead arranger (i.e., JOINT_LEAD = 1), of which more than 80% have 2 lead arrangers. This finding is comparable with the number (31%) reported in Sufi (2007). The average value of lead arranger-specific VALID estimate is 0.149 with a standard deviation of 0.489. We find lead arrangers and borrowers of 14% of the sample loans have previous lending relationships during the past three years. We also find that in 64.9% of sample loans, participating banks have formed previous lending relationships with the same borrower during the past three years.

We report Pearson correlations in Table 2. We find lead arrangers retain higher proportions of loans when they are smaller, have a higher percentage of loans relative to total assets, when the borrowers are smaller, and when loans are riskier as reflected in higher spreads. In contrast, we find loans are more likely to have joint lead arrangers

when the lead arrangers are larger or borrowers are larger, consistent with the view that multiple lead arrangers exist to share monitoring tasks. We also find that SHARE_LEAD and JOINT_LEAD is significantly negatively correlated (-0.32), suggesting that when there are multiple lead arrangers each lead arranger retains a smaller proportion of the loan. We do not find the simple correlation between VALID and the two syndication structures (i.e., SHARE_LEAD and JOINT_LEAD) to be significant. While these findings do not support H1, inferences should be based on multivariate analyses. In addition, the correlation between VALID and CHARGESTD_L is 0.05, inconsistent with the concern that higher Valid is driven by lower charge-off volatility. The correlations among other control variables are largely consistent with the existing literature and our expectations.

5.2 Main Results

Table 3 reports empirical results of our OLS estimation for lead arrangers' loan shares and Probit model for the incident of multiple lead arrangers. Consistent with our predictions, the coefficients on VALID in both columns are significantly negative. The coefficient on VALID in Column (1) is -0.01 with a *p-value* of 0.013, suggesting that the lead arranger is required to hold a larger fraction of loans when the provision validity is lower. This result is also economically significant. Lead arrangers retain 0.5% less shares with a one standard deviation increase in VALID. This decrease in lead arranger shares is similar in economic magnitude to the impact of adding one financial covenant. The estimated coefficients on other control variables in column (1) are consistent with our expectations. For example, we find that banks holding more loans and having worse credit ratings retain a higher proportion of loans, suggesting that lead arrangers with a

riskier profile are required to retain more loans. We also find that lead arrangers retain a higher proportion of loans when the information problem between borrowers and lenders is higher as evidenced by positive coefficients on borrower firm size and borrower credit rating, and a negative coefficient on whether the borrower is rated (Sufi, 2007). Finally, we document that lead arrangers retain a higher proportion for riskier loan packages. For example, the coefficient on loan spread is significantly positive.

Comparing the estimated coefficients between column (1) and column (2), we find that our empirical results in column (2) are consistent with the argument that joint lead arrangers exist both to facilitate task sharing and to improve the monitoring efficiency. For example, we find larger banks for larger borrowers are more likely to originate loans with joint lead arrangers. These loans tend to have a longer maturity and a larger loan amount. These associations are more consistent with multiple lead arrangers sharing monitoring tasks or to avoid violating the regulatory limit on the amount of loan a lead arranger is allowed to take on. However, we also find term loans and loans with higher spreads above LIBOR tend to have joint lead arrangers, more suggestive of the argument that risky loans need closer monitoring and joint lead arrangers improves monitoring efficiency. More importantly, consistent with H1, we find that the likelihood of multiple lead arrangers decreases with VALID, suggesting that when provision validity is higher, participating banks are less likely to require multiple lead banks to either monitor the main lead bank or to share monitoring tasks. Overall, Table 3 suggests

that lead arrangers' accounting information is useful in mitigating the information problems between participants and lead arrangers.[10]

Table 4 presents empirical results of how the impact of VALID on syndication structures varies with various previous lending relationships. In columns (1) and (2), we find that the negative correlations between VALID and both lead arrangers' loan shares and the likelihood of multiple lead arrangers are attenuated when participants and lead arrangers have previous syndication relationships. These results are consistent with H2, suggesting that the effect of lead arranger's financial reporting on lead arranger-participant information problems is less important when participants have more knowledge or have dealt with lead arrangers in the past.

In addition, consistent with H3, we find that in column (4) the negative coefficient on VALID is dampened when participating banks have lent to the same borrower in the past. This result is consistent with the idea that the importance of lead arranger's accounting quality is lower when participating banks are more familiar with the borrower. Further, consistent with H4, we find that when borrowers have past lending relationships with the lead arranger, the negative coefficient on VALID is attenuated in both columns (5) and (6). This result is consistent with the explanation that when the overall moral hazard concern is lower, the effect of lead arranger's accounting quality in addressing information problems becomes lower. In sum, these three cross-sectional analyses serve as our main identification and show evidence that lead arrangers' accounting quality addresses the information asymmetry between the lead arrangers and participating banks.

[10] Table 3 models SHARE_LEAD and JOINT_LEAD separately. In an untabulated analysis, we also control for JOINT_LEAD (SHARE_LEAD) in the regression of SHARE_LEAD (JOINT_LEAD), our results are the same.

Finally, since the inference from the interaction term in a Probit model may be ambiguous, we follow Wooldridge (2014) and provide the marginal effect of VALID at the bottom of Table 4 for the subsamples where the lending relationship of interest equal to 0 and 1 (i.e., PART_LEAD, BORROWER_PART, BORROWER_LEAD), respectively in columns (2), (4) and (6). We find the marginal effect of VALID on the existence of multiple lead arrangers to be significantly negative only when the various previous lending relationships equal 0, supporting our H2 through H4.

5.3 Additional analyses

One concern with our test variable VALID is that it may capture business risk instead of accounting quality and that our coefficient estimates are biased because of the measurement error or omitted variable issue. Thus, in a supplemental analysis, we use SEC comment letters as an alternative measure of perceived accounting quality by outsiders. Specifically, we use SEC comment letters for lead arrangers where the SEC identifies accounting deficiencies associated with allowances for loan losses and communicates back and forth with the bank in question for multiple rounds as a proxy for change in perceived accounting quality.[11] We argue that participating banks in syndicates may perceive that these lead arrangers have lower accounting quality related to loan loss provisions and the perceived information asymmetry between lead arrangers and lending participants increases after the comment letter is disclosed.

We identify 1,293 loan facilitates originated from three years before to three years after the comment letter disclosure by 11 commercial banks that communicate with SEC

[11] Fifty percent of comment letters involve only one round of communication where the SEC is satisfied with the bank's first response.

for multiple rounds regarding loan loss allowances from 2005 to 2009.[12] We then match these treatment facilities with facilities originated during the same year where lead arrangers have never received SEC comment letters regarding loan loss allowances during the period based on lead arranger size, borrower size, and loan spreads. Using a difference in difference approach, we examine whether SHARE_LEAD (JOINT_LEAD) increases more for banks receiving the SEC comment letters after the comment letter disclosure dates relative to the control group. Specifically, we estimate the following model:

$$\textit{Syndication structure}_{i,j} = \gamma_0 + \gamma_i \textit{COMMENT}_j + \gamma_2 \textit{POST}_{i,j} + \gamma_3 \textit{COMMENT\_POST}_{i,j} + \gamma_4 \textit{Lender characteristics}_j + \gamma_5 \textit{Borrower characteristics}_i + \gamma_6 \textit{Loan characteristics}_i + \omega_{i,j},$$

where COMMENT is an indicator variable equal to one for loans originated by banks that receive comment letters and POST is an indicator equal to one for loans originated after the comment letters are disclosed. We expect to find a positive coefficient on COMMENT_POST, which is the interacted term between COMMENT and POST. Results in Table 5 are consistent with our predictions. We find significant positive coefficients for COMMENT_POST in both columns, suggesting that the information asymmetry between lead arrangers that receive SEC comment letters and lending participants increases after the comment letter is disclosed, thereby increasing lead arrangers' required loan share and the likelihood of multiple lead arrangers. This result should however be interpreted with caution because the number of banks receiving SEC comment letters is small.

[12] If a bank receives SEC comment letters regarding loan loss allowances for multiple times during this period, we keep the first comment letter in the analysis.

As mentioned above, because our main analysis is conducted at the facility-lead arranger level, the same facility is included in the analysis twice if there are two lead arrangers. As a sensitivity analysis, we conduct our analysis at the facility level by only examining the main lead arranger whose loan share is the largest in the syndicate. We continue to find very similar results. For the loan share analysis, we also average all lead arrangers' retained share for each loan and allow only one observation per facility. We continue to find similar results.

6. Conclusion

This study examines whether lead arrangers' financial reporting quality, i.e., provision validity, affects syndication structures in a syndicated loan. We argue that participating banks in a syndicated loan may use lead arrangers' accounting information to assess whether lead arrangers are performing their screening and monitoring tasks appropriately, thereby mitigating agency problems arising from the lead arranger-participant information asymmetry. We find evidence consistent with the notion that lead arrangers' accounting information helps address informational problems faced by participating banks. Specifically, we find that the proportion of loans retained by lead arrangers and the likelihood of multiple lead arrangers in a syndicate decrease with lead arrangers' provision validity. In addition, we find that this negative association is attenuated when lead arrangers and participants have previous syndicate relationships, when participants and the borrower have previous lending relationships, and when lead arrangers have lent to the same borrower in the past.

Our study contributes to the debt contracting and accounting quality literature and broadens our understanding of loan syndication process. Our study provides more direct

evidence compared to the prior research that information asymmetry between lead arrangers and participants shapes the loan structure. Prior research has used borrowers' information environment to infer this lead arranger-participant information asymmetry, which is indirect in our opinion. Our study also provides nuanced insight on why a syndicated loan may require multiple lead arrangers. Finally, our study provides another channel through which banks' loan loss provision information plays an important role in affecting capital provision to firms.

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Appendix 1: Variable definitions

Variables of interest	
SHARE_LEAD	Fraction of the loan facility owned by a lead arranger.
JOINT_LEAD	Indicator variable that equals 1 if a facility has more than one lead arranger.
VALID	Estimated coefficient β from the following regression. $ChargOff_{t+1} = \alpha + \beta * Provison_t + \gamma * NONACC_t$. Provision is loan loss provision for quarter *t* divided by the beginning balance of total loans. *NONACC* is total non-accrual loans at the end of quarter *t* divided the beginning balance of total loans. $ChargOff_{t+1}$ is the average net charge off for the next 4 quarters divided by the balance of total loans at the end of quarter *t*. β is estimated for each bank quarter on a rolling basis using information from the past 20 quarters. We require information available for at least 12 quarters.
PART_LEAD	Indicator variable that equals 1 if the relationship between lead arrangers and loan participants is above the sample median. For each pair of lead arranger and participant, we measure the relation as total number of unique loan packages involving both parties that are originated during the past year. We then sum up the above measure across all participants and divide it by number of lenders within the syndication.
BORROWER_LEAD	Indicator variable that equals 1 if the lead arranger in the current deal has served as the lead arranger for the same borrower for a different loan during the past three years.
BORROWER_PART	Indictor variable that equals 1 if at least one of the loan participants in the current deal has participated loans with the same borrower during the past three years.
Control variables:	
Lead arranger characteristics	
SIZE_L	Natural log of total assets.
LOAN_L	Total loans divided by total assets.
LEV_L	Total liabilities divided by total assets.
NONACC_L	Total non-accrual loans divided by beginning balance of total loans.
ROA_L	Earnings before extraordinary items divided by beginning balance of total assets.

RATED_L	Indicator variable that equals 1 if the lead arranger is rated.
SPRATE_L	Lead arranger issuer rating with AAA=1. 0 for non-rated lenders.
CHARGESTD_L	Standard deviation of quarterly charge offs over the past 20 quarters.
Borrower characteristics	
SIZE_B	Natural log of total assets.
LEV_B	Total debt divided by total assets.
MTB_B	Sum of market value of equity and book value of debt divided by total assets.
ROA_B	Earnings before extraordinary items divided by the beginning balance of total assets.
RATED_B	Indicator variable that equals 1 if the lead arranger is rated.
SPRATE_B	Borrower issuer rating with AAA=1. 0 for non-rated borrowers.
Loan characteristics	
SPREAD	Loan spread above LIBOR.
LOAN_AMT	Loan amount scaled by borrower's total assets.
MATURE	Natural log of number of months to loan maturity.
TERM	Indicator variable that equals 1 for a term loan.
SECURE	Indicator variable that equals 1 if the loan is collateralized.
NCOV	Number of financial covenants.
NLENDER	Number of lenders in the syndication.
AMT_CAPITAL	Loan amount divided by lead arranger's capital.
Variables related to the SEC Comment letters	
COMMENT	Indicator variable that equals 1 if a lead arranger's parent bank holding company receives at least one SEC comment letter related to accounting deficiencies with allowances for loan losses and the bank communicated with the SEC for at least 2 rounds, 0 otherwise.
POST	Indicator variable that equals 1 for loans originated three years after the comment letter disclosure dates, 0 for loans originated three years before the comment letter disclosure dates.
COMMENT_POST	Interaction term of COMMENT and POST. Each treatment facility those lead arranger received at least one relevant SEC comment letter is matched with a

	control facility originated in the same year and whose lead arrangers have never received relevant SEC comment letters during 2005- 2009 based on lead arranger size, borrower size, and loan spreads.

Table 1: Descriptive statistics

	Mean	STD	10%	25%	50%	75%	90%
SHARE_LEAD	0.215	0.164	0.068	0.098	0.155	0.278	0.500
JOINT_LEAD	0.295	0.456	0	0	0	1	1
VALID	0.149	0.489	-0.272	-0.101	0.086	0.273	0.516
PART_LEAD	0.5	0.5	0	0	0.5	1	1
BORROWER_LEAD	0.141	0.378	0	0	0	0	1
BORROWER_PART	0.649	0.477	0	0	1	1	1
SIZE_L	12.33	1.414	10.28	11.45	12.61	13.38	13.96
LOAN_L	0.531	0.141	0.331	0.444	0.547	0.632	0.704
LEV_L	0.921	0.018	0.899	0.911	0.921	0.935	0.942
NONACC_L	0.0089	0.0090	0.0021	0.0033	0.0064	0.0109	0.0166
ROA_L	0.0041	0.0024	0.0012	0.0028	0.0042	0.0053	0.0062
RATED_L	0.827	0.378	0	1	1	1	1
SPRATE_L	4.167	2.046	0	4	5	5	6
CHARGESTD_L	0.0015	0.0011	0.0005	0.0007	0.0012	0.0018	0.0033
SIZE_B	7.498	1.867	5.095	6.108	7.420	8.749	10.002
LEV_B	0.302	0.187	0.053	0.165	0.289	0.422	0.540
MTB_B	1.668	0.826	1.016	1.143	1.413	1.870	2.632
ROA_B	0.041	0.061	-0.013	0.017	0.041	0.071	0.104
RATED_B	0.573	0.494	0	0	1	1	1
SPRATE_B	5.113	4.957	0	0	6	9	12
SPREAD	129	100	27.5	50.0	100	180	275
LOAN_AMT	0.220	0.242	0.028	0.065	0.140	0.284	0.504
MATURE	3.567	0.672	2.485	3.178	3.737	4.094	4.094
TERM	0.161	0.367	0	0	0	0	1
SECURE	0.355	0.478	0	0	0	1	1
NCOV	1.573	1.231	0	0	2	2	3
NLENDER	12.68	9.69	3	5	10	18	25
AMT_CAPITAL	0.037	0.068	0.002	0.005	0.013	0.036	0.090

Table 2: Correlations of main variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
SHARE_LEAD (1)	1																				
JOINT_LEAD (2)	-0.32	1																			
VALID (3)	-0.01	-0.02	1																		
PART_LEAD (4)	-0.29	0.11	-0.02	1																	
BORROWER_LEAD (5)	-0.04	-0.04	-0.02	0.11	1																
BORROWER_PART (6)	-0.32	0.08	-0.03	0.18	0.17	1															
CHARGESTD_L (7)	-0.03	-0.14	0.05	-0.03	0.03	-0.02	1														
SIZE_L (8)	-0.37	0.44	-0.02	0.35	-0.04	0.15	-0.14	1													
LOAN_L (9)	0.27	-0.11	-0.12	-0.20	-0.03	-0.11	-0.19	-0.39	1												
LEV_L (10)	-0.09	-0.19	0.00	0.07	0.05	0.06	0.15	-0.09	-0.39	1											
ROA_L (11)	0.13	-0.11	-0.04	0.01	0.02	-0.01	-0.10	-0.20	0.39	-0.19	1										
NONACC_L (12)	-0.14	0.22	0.02	-0.10	-0.08	-0.08	0.21	0.34	-0.18	-0.15	-0.34	1									
SIZE_B (13)	-0.59	0.46	-0.02	0.27	0.02	0.24	-0.06	0.51	-0.27	0.02	-0.14	0.22	1								
LEV_B (14)	-0.10	0.05	-0.01	0.01	0.07	0.11	0.02	0.01	-0.02	0.05	-0.02	0.03	0.06	1							
ROA_B (15)	-0.04	0.02	0.01	0.06	0.01	0.01	-0.04	-0.01	0.02	-0.02	0.03	-0.11	-0.06	-0.27	1						
LOAN_AMT (16)	0.18	-0.22	-0.01	-0.12	-0.05	-0.09	0.03	-0.29	0.14	0.03	0.09	-0.15	-0.56	-0.02	0.09	1					
MATURE (17)	-0.03	0.01	-0.01	0.02	-0.06	-0.03	0.10	0.00	0.01	-0.03	0.01	-0.10	-0.18	0.01	0.04	0.20	1				
TERM (18)	0.15	-0.02	-0.00	0.01	0.08	-0.04	0.04	-0.06	0.01	0.01	-0.01	-0.03	-0.13	0.08	-0.05	-0.02	0.19	1			
SPREAD (19)	0.35	-0.06	0.02	-0.27	-0.01	-0.19	0.03	-0.10	0.09	-0.15	-0.08	0.27	-0.40	0.19	-0.32	0.15	0.06	0.26	1		
SECURE (20)	0.29	-0.15	-0.01	-0.17	0.01	-0.10	0.04	-0.17	0.09	-0.04	0.03	-0.04	-0.44	0.11	-0.17	0.26	0.17	0.19	0.53	1	
NCOV (21)	0.16	-0.06	-0.06	-0.06	-0.01	-0.04	-0.17	-0.01	0.10	-0.16	0.08	-0.09	-0.35	0.07	-0.01	0.20	0.17	0.10	0.32	0.32	1
NLENDER (22)	-0.64	0.25	-0.03	0.22	0.07	0.28	0.06	0.30	-0.25	0.15	-0.10	0.11	0.61	0.12	0.01	-0.15	0.01	-0.05	-0.29	-0.23	-0.17

Table 3: Effects of provision validity (VALID) on syndication ownership structure and agency structure

	(1)	(2)
VARIABLES	SHARE_LEAD	JOINT_LEAD
	Coefficient (p-value)	Coefficient (p-value)
Bank characteristics		
VALID	**-0.010****	**-0.097****
	(0.013)	**(0.035)**
CHARGESTD_L	-6.128*	-24.95
	(0.067)	(0.507)
SIZE_L	-0.003	0.029
	(0.480)	(0.455)
LOAN_L	0.042**	0.265
	(0.021)	(0.226)
LEV_L	-0.034	-4.438***
	(0.815)	(0.001)
ROA_L	1.743**	-8.115
	(0.015)	(0.557)
NONACC_L	-0.145	-10.619**
	(0.775)	(0.050)
RATED_L	-0.042*	0.318
	(0.099)	(0.403)
SPRATE_L	0.008*	-0.083
	(0.056)	(0.218)
Borrower characteristics		
SIZE_B	-0.025***	0.356***
	(0.000)	(0.000)
LEV_B	-0.039***	0.465***
	(0.004)	(0.001)
MTB_B	-0.004	0.041
	(0.205)	(0.194)
ROA_B	-0.082***	1.227***
	(0.001)	(0.000)
RATED_B	-0.005***	-0.008
	(0.000)	(0.626)
SPRATE_B	0.035***	0.132
	(0.000)	(0.531)
Loan characteristics		
LOAN_AMT	-0.059***	0.494***

	(0.000)	(0.000)
MATURE	-0.019***	0.124***
	(0.000)	(0.000)
TERM	0.031***	0.157***
	(0.000)	(0.007)
LOGSPREAD	0.024***	0.166***
	(0.000)	(0.001)
SECURE	0.013**	-0.042
	(0.022)	(0.465)
NCOV	-0.006***	0.006
	(0.003)	(0.825)
NLENDER	-0.007***	0.007
	(0.000)	(0.249)
AMT_CAPITAL	0.096	-0.842
	(0.147)	(0.212)
Constant	0.530***	1.193
	(0.001)	(0.415)
Borrower IND. FE	Yes	Yes
Year FE	Yes	Yes
R-squared	0.522	
Pseudo R2		0.349
Observations	7,950	7,950

Note: ***, ** and * represent the coefficients are significant at the 1%, 5% and 10% levels, respectively. Standard errors are clustered at the bank level.

Table 4: Effects of provision validity (VALID) on syndication ownership structure and agency structure depending on prior lending relationships

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	SHARE_LEAD	JOINT_LEAD	SHARE_LEAD	JOINT_LEAD	SHARE_LEAD	JOINT_LEAD
	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
VALID	-0.015***	-0.158**	-0.016***	-0.165***	-0.012***	-0.128***
	(0.003)	(0.012)	(0.004)	(0.006)	(0.003)	(0.002)
PART_LEAD	-0.032***	-0.009				
	(0.000)	(0.803)				
VALID*PART_LEAD	**0.011***	**0.115****				
	(0.058)	**(0.030)**				
BORROWER_PART			-0.039***	-0.192***		
			(0.000)	(0.000)		
VALID* BORROWER_PART			**0.009**	**0.123****		
			(0.264)	**(0.013)**		
BORROWER_LEAD					-0.009	-0.096
					(0.111)	(0.285)
VALID* BORROWER_LEAD					**0.013****	**0.178****
					(0.038)	**(0.036)**
BANK CHARACTERISTICS						
CHARGESTD_L	-5.601*	-25.47	-6.284*	-25.328	-6.075*	-25.294
	(0.052)	(0.498)	(0.054)	(0.503)	(0.069)	(0.501)
SIZE_L	0.002	0.026	-0.003	0.031	-0.003	0.030

	(0.724)	(0.525)	(0.546)	(0.445)	(0.489)	(0.438)
LOAN_L	0.041**	0.250	0.046**	0.263	0.046**	0.259
	(0.038)	(0.249)	(0.011)	(0.218)	(0.021)	(0.234)
LEV_L	-0.057	-4.379***	-0.033	-4.303***	-0.035	-4.412***
	(0.689)	(0.001)	(0.804)	(0.001)	(0.808)	(0.001)
ROA_L	1.930***	-8.546	1.622**	-8.749	1.772**	-7.719
	(0.004)	(0.534)	(0.019)	(0.512)	(0.013)	(0.570)
NONACC_L	-0.327	-10.772**	-0.278	-11.074**	-0.179	-10.924**
	(0.515)	(0.043)	(0.585)	(0.038)	(0.719)	(0.040)
RATED_L	-0.052**	0.325	-0.046*	0.308	-0.042*	0.301
	(0.057)	(0.388)	(0.059)	(0.422)	(0.093)	(0.412)
SPRATE_L	0.009**	-0.083	0.008**	-0.081	0.008*	-0.082
	(0.034)	(0.209)	(0.033)	(0.232)	(0.053)	(0.222)
BORROWER CHARACTERSTICS						
SIZE_B	-0.025***	0.356***	-0.024***	0.364***	-0.025***	0.356***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LEV_B	-0.039***	0.465***	-0.031**	0.502***	-0.039***	0.472***
	(0.002)	(0.001)	(0.013)	(0.000)	(0.005)	(0.001)
MTB_B	-0.004	0.041	-0.004*	0.035	-0.004	0.047
	(0.198)	(0.199)	(0.082)	(0.265)	(0.209)	(0.197)
ROA_B	-0.077***	1.232***	-0.076***	1.272***	-0.081***	1.239***
	(0.005)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
RATED_B	-0.004***	-0.008	-0.005***	-0.009	-0.005***	-0.008
	(0.001)	(0.616)	(0.000)	(0.683)	(0.000)	(0.614)
SPRATE_B	0.033***	0.135	0.036***	0.148	0.035***	0.135
	(0.002)	(0.519)	(0.000)	(0.483)	(0.000)	(0.521)
LOAN CHARACTERISTICS						

LOAN_AMT	-0.059***	0.496***	-0.055***	0.525***	-0.062***	0.482***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MATURE	-0.019***	0.125***	-0.021***	0.112***	-0.019***	0.119***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
TERM	0.034***	0.159***	0.031***	0.165***	0.032***	0.164***
	(0.000)	(0.008)	(0.000)	(0.005)	(0.000)	(0.005)
LOGSPREAD	0.022***	0.167***	0.023***	0.164***	0.024***	0.167***
	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
SECURE	0.012**	-0.043	0.014**	-0.039	0.013**	-0.044
	(0.029)	(0.498)	(0.017)	(0.518)	(0.021)	(0.494)
NCOV	-0.006***	0.006	-0.006**	0.008	-0.006***	0.007
	(0.009)	(0.851)	(0.004)	(0.791)	(0.003)	(0.798)
NLENDER	-0.007***	0.007	-0.007***	0.008	-0.007***	0.007
	(0.000)	(0.245)	(0.000)	(0.175)	(0.000)	(0.223)
AMT_CAPITAL	0.095	-0.852	0.089	-0.917	0.095	-0.839
	(0.152)	(0.208)	(0.156)	(0.167)	(0.151)	(0.210)
CONSTANT	0.510***	1.235	0.547***	1.214	0.534***	1.251
	(0.001)	(0.405)	(0.000)	(0.396)	(0.001)	(0.395)
Borrower IND. FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,950	7,950	7,950	7,950	7,950	7,950
R-squared	0.528		0.534		0.521	
Pseudo R2		0.349		0.351		0.350
Marginal effects of VALID When lending relationship =0		-0.0384*** (0.009)		-0.0485*** (0.007)		-0.0316*** (0.001)

Marginal effects of BETA		-0.0108		-0.0089		0.0129
When lending relationship =1		(0.290)		(0.319)		(0.578)

Note: ***, ** and * represent the coefficients are significant at the 1%, 5% and 10% levels, respectively. Standard errors are clustered at the bank level.

Table 5: Effects of the SEC comment letters on syndication ownership structure and agency structure

	(1)	(2)
VARIABLES	SHARE_LEAD	JOINT_LEAD
	Coefficient (p-value)	Coefficient (p-value)
COMMENT	-0.0086	-0.1188
	[0.350]	[0.283]
POST	-0.0138***	-0.2118***
	[0.002]	[0.000]
COMMENT_POST	0.0193**	0.1855*
	[0.022]	[0.086]
Bank characteristics		
SIZE_L	-0.0076	0.1724
	[0.423]	[0.200]
LOAN_L	0.0489	0.3719
	[0.101]	[0.528]
LEV_L	0.2856	-6.8193
	[0.321]	[0.156]
ROA_L	2.8556*	-4.8704
	[0.068]	[0.783]
NONACC_L	0.5772	-15.0162**
	[0.194]	[0.035]
RATED_L	0.0507	0.3532
	[0.274]	[0.668]
SPRATE_L	-0.0028	-0.0045
	[0.710]	[0.973]
Borrower characteristics		
SIZE_B	-0.0172***	0.3143***
	[0.000]	[0.000]
LEV_B	-0.0457***	0.0322
	[0.002]	[0.831]
MTB_B	-0.0056	0.1442***
	[0.190]	[0.000]
ROA_B	-0.1087*	0.0955
	[0.079]	[0.843]
RATED_B	-0.0022	-0.0183
	[0.109]	[0.273]
SPRATE_B	0.0248	0.5156***
	[0.104]	[0.005]

Loan characteristics		
LOAN_AMT	-0.0621***	0.5943**
	[0.000]	[0.016]
MATURE	-0.0333***	0.0589**
	[0.000]	[0.034]
TERM	0.0456***	0.3500***
	[0.000]	[0.000]
LOGSPREAD	0.0122***	0.2091**
	[0.010]	[0.025]
SECURE	0.0230***	-0.0760
	[0.003]	[0.287]
NCOV	-0.0013	0.0207
	[0.523]	[0.577]
NLENDER	-0.0069***	-0.0057
	[0.000]	[0.416]
AMT_CAPITAL	0.1166	3.0231*
	[0.464]	[0.080]
Constant	0.3388	0.3289
	[0.221]	[0.952]
Borrower IND. FE	Yes	Yes
Year FE	Yes	Yes
R-squared	0.504	
Pseudo R2		0.239
Observations	2,586	2,586

Note: ***, ** and * represent the coefficients are significant at the 1%, 5% and 10% levels, respectively. Standard errors are clustered at the bank level. Each treatment facility is matched with a control facility originated in the same year, of which the lead arrangers have never received relevant SEC comment letters during 2005 and 2009 based on lead arranger size, borrower size, and loan spreads.