The Effect of Banks' Financial Reporting
on Syndicated Loan Structures

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Abstract

We examine whether lead lenders' loan loss provision validity, measured as the extent of loan loss provisions capturing subsequent charge offs, affects the fraction of loans retained by lead lenders. Consistent with the argument that provision validity provides information about banks' underlying screening and monitoring abilities, we first document positive associations between provision validity and both ex post monitoring outcomes and cross-sectional variation in equity market reactions to borrowers' loan announcements. We then find that lead lenders with higher provision validity retain lower fractions of syndicated loans, especially when participant lenders in a syndicate lack alternative information sources to assess lead lenders' screening and monitoring ability. Our finding that the importance of lead lenders' provision validity on syndication structures is attenuated by the existence of the borrower's credit rating, lead lenders' previous syndicating relationships with participating banks, participants' previous lending relationships with the borrower, and lead lenders' past lending relationships with the borrower suggests that our measure captures an information effect, rather than merely the lead lenders' characteristics. Our study contributes to the literature by exploring how lead lenders' accounting information affects information asymmetry between lead lenders and participating banks and thereby influences syndication structures.

1. Introduction

The growth of syndicated loan originations to more than $2 trillion annually within the U.S. is consistent with the diversification benefits provided by these multiple lender loans. Participant lenders' delegation of loan screening and monitoring to lead lenders avoids the duplication of effort that would otherwise arise from having multiple lenders, but creates a potentially costly additional layer of agency problems between the participants and lead lenders (Leland and Pyle, 1997; Diamond, 1984). The moral hazard and adverse selection problems, which arise from asymmetric information about the lead lenders' screening and monitoring efforts, may induce lead lenders to hold larger shares of syndicated loan than they would for optimal diversification. Alternatively, better information about the lead lenders' screening and monitoring ability could mitigate the information asymmetry problem, thereby reducing the lead lenders' need to increase their share of the syndicated loan.

We examine the importance of the lead lenders' reported accounting numbers in addressing this information asymmetry problem. If participants are able to assess lead lenders' monitoring and screening ability using their accounting information, then we expect lead lenders to hold lower shares of the syndicated loan. To separately identify the information content of the reported accounting numbers from other firm attributes and potential omitted correlated variables that they may capture, we examine how the association between the reported accounting numbers and lead lender syndicate share differs based on alternative information sources. Specifically, we consider borrowers' crediting ratings, and prior lending relationships between participants and lead lenders, between participants and borrowers, and between lead lenders and borrowers as alternative information sources in this identification strategy.

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We predict a reduced association between lead lenders' accounting information and loan shares retained by lead lenders in the presence of these alternative information sources. First, credit rating agencies provide additional information about borrowers that disciplines borrowers' risk taking and helps participant lenders evaluate the borrowers. Thus, we contend that loan participants face less information asymmetry with lead lenders about the borrowers and tend to rely less on lead lenders' screening and monitoring efforts when borrowers are rated. Further, we argue that when participants have previous syndicating relationships with the lead lenders then the lead lender's accounting information is less important because participants have less uncertainty about the lead lender's screening and monitoring effectiveness. Similarly, when participants have previously participated in loans for the same borrower, we expect the information advantage of the lead lender regarding the borrower's creditworthiness to be lower. Thus, we also expect the importance of lead lender's accounting information in addressing the information problems to be lower.

In contrast, when lead lenders have previously lent to the borrower we would expect the information asymmetry between the lead lender and participants to be exacerbated. However, Sufi (2007) and Bharath et al. (2011) argue that previous lead lender-borrower relationships may increase the lead lenders' monitoring and screening effectiveness when lending to the same borrower, thereby reducing moral hazard concerns. They find that the benefits of reduced moral hazard concerns outweigh the potential increased information asymmetry, resulting in lower loan shares retained by lead lenders. Based on their findings, we predict that the association between lead lenders'

accounting information and retained shares in syndicates should decrease if lead lenders have lent to the same borrower previously.

Our primary measure of the informativeness of the lead lenders' reported accounting numbers about screening and monitoring ability is the validity of the loan loss provision in capturing subsequent losses. Based on OCC's (2012) arguments that loan loss provision depends on the banks' systems for identifying, monitoring, and addressing loan quality problems, we argue that the lead lenders' loan loss provision quality may provide information about their screening and monitoring effectiveness. Specifically, 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, and measure lead lenders' financial reporting quality as the extent to which current loan loss provisions capture future loan charge offs (i.e., provision validity).

We validate the relation between provision validity and banks' screening and monitoring abilities using both ex post monitoring outcomes and cross-sectional variation in equity market reactions to loan announcements made by borrowers. While this validation indicates that high provision validity likely signals high screening and monitoring ability, low provision validity may reflect either low ability or a poor signal of the lead lenders' abilities. Therefore, provision validity provides useful but *imperfect* information about lead lenders' screening and monitoring abilities.

Using 7,950 facility-lender pairs found in 6,706 loan facilities in 5,355 syndicated loan packages syndicated by 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

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lead lenders decreases with lead lenders' provision validity. These on average findings are consistent with the notion that participating banks rely on lead lenders' accounting information when deciding to take part in the syndicates. However, in addition to the possibility that our validity measure also captures other bank attributes as mentioned earlier, the on average findings cannot distinguish between 1) the possibility that the lead lenders' provisioning validity *informs* participants of their underwriting and monitoring quality and 2) the mere association between provision quality and monitoring and screening ability. Our cross-sectional tests based on alternative information sources help distinguish between these two possibilities in addition to addressing the potential omitted correlated variables concern.

We find that the negative association between provision validity and lead lender loan share is attenuated when borrowers are rated, when the participants have previous syndicating relationships with the same lead lender, and when participants have previously lent to the same borrowers. We also find an attenuated association between provision validity and lead lender loan share when the lead lenders have lent to the same borrower. These results together suggest that the provision validity is informative to the participants about lead lenders' screening and monitoring ability rather than capturing the mere association between provision validity and the underlying lender ability. More importantly, these results are supportive of the notion that provision information is used to mitigate information asymmetry between lead lenders and participants and therefore affects the loan structure.

This study makes several contributions to the literature. Our study expands the literature associating accounting quality with debt contracting and syndication structures.

This literature mostly focuses on the information asymmetry between lenders as a group and borrowers (e.g., Zhang, 2008; Beatty et al., 2008; Bharath et al., 2008). We instead focus on another important agency problem arising from asymmetric information among lenders. While limited prior research studies how borrower accounting information, by mitigating differences between lead lenders' and participants' information about borrowers, affects the proportion on the loan held by lead lenders (see Sufi, 2007, and Ball et al., 2008), few studies have directly examined how lead lenders' financial reporting affects this information asymmetry among lenders. Our study differs from prior research 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 lead lenders' screening and monitoring effectiveness.

Further, this study broadens our understanding of the economic consequences of the informativeness of banks' loan loss provisions. The literature on loan loss provisions has focused on two potential roles of provisions. Provisions are likely used to convey management's private information to mitigate information asymmetry with external investors (e.g., Beaver and Engel, 1996; Wahlen, 1994) or are used opportunistically for capital or earnings management (e.g., Liu and Ryan, 2006; Collins et al., 1995; Beatty et al., 1995). Our study extends this literature by documenting that participating banks in a syndicate use lead lenders' provision to mitigate information problems and that provisions have real economic effects on syndicate structures. Given the importance of banks' role in providing capital to other sectors (Beatty and Liao, 2014), it is important to understand the 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 borrower. The importance of syndicated loans in providing capital to corporates has increased drastically in the past several decades (Sufi, 2007). The "lead lender" 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 lender then finds other syndicate members or participating banks to fund part of the loan (Taylor and Sansone, 2007). Lead lenders 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 lenders screen the borrowers and monitor the borrower's compliance with contractual terms on behalf of the syndicate. Lead lenders 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 lenders and syndicate members. Because of the information asymmetry between lead lenders and participating banks and because the monitoring efforts by lead lenders are not directly observable, agency problems arise when lead lenders' screening and monitoring efforts are not aligned with syndicate member banks' interests. Ball et al. (2008) argue that the agency problems between lead lenders and participants can be separated into those that are ex ante (before contract signing) and ex post (after contract signing). Ex ante, lead lenders may have private information about the borrower, which leads to adverse selection problems and an incentive to shirk on their due diligence role in screening monitors due to a moral hazard (hidden effort) problem. Ex post, lead lenders many have an incentive to shirk on their monitoring role or to engage in self-serving activities at participants' costs.

These agency problems can be mitigated either by increasing lenders' screening and monitoring incentives by requiring lead lenders to hold a significant proportion of the loans (Sufi, 2007) or by reducing the information asymmetry among lenders. Prior debt contracting studies have mostly focused on how information asymmetry between borrowers and lenders as a group 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 interest rates charged on borrowers. 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 lenders' share of loans increases with

borrowers' credit risk and information opacity, suggesting that participants require lead lenders to have more "skin in the game" when the information problem between the borrower and lenders is greater.

The importance of borrowers' accounting information in mitigating information problems among lenders has also been considered. Specifically, Ball et al. (2008) argue that participants may use borrowers' accounting information to assess lead lenders' screening efforts to mitigate adverse selection, a concern that privately informed lead lenders 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 lenders' monitoring effectiveness to overcome potential shirking by lead lenders.

Fewer studies have focused on the importance of lender characteristics in measuring monitoring and screening ability and in alleviating information asymmetry among lenders. Previous studies examining lenders' screening and monitoring ability have used banks' credit ratings (Billet et al., 1995), ratio of loan loss provision to loans (Johnson, 1997), market share (Sufi, 2007), and reputation (Ross, 2010, and Goplan et al., 2011).[1] We extend this literature by considering how lead lenders' financial reporting addresses information asymmetry between the lead lender and other syndicate members by providing information that participating banks may use to evaluate lead lenders' screening and monitoring effectiveness. Our study also broadens our understanding of how loan structures are affected by lead lender-participant information asymmetry.

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[1] These studies have typically validated their screening and monitoring measures using the borrower's stock price reaction to the loan announcement. However, these measures have been criticized because they reflect other bank characteristics such as risk and risk preference in addition to screening and monitoring ability (see Coleman et al., 2006, and Lee and Sharpe, 2006).

2.2 Validation of Loan Loss Provisions

The current accounting standards governing loan loss provision are FAS 114 and FAS 5, which provide specific guidance for loans deemed to be impaired when it is probable that not all interest and principal payments will be made as scheduled. The purpose of loan loss recognition is to reflect changes in management's expectations of future loan losses. The 1997 OCC Advisory Letter (OCC97-8, 1997) indicates that *"many banks generally consider coverage of one year's losses an appropriate benchmark for most pools of loans because the probable loss on any given pool should ordinarily become apparent in that time frame,"* suggesting that banks tend to recognize loan loss provisions based on the estimated losses likely to materialize in a year.

The OCC further points out that banks must recognize losses in accordance with regulatory charge-off criteria, suggesting that provisions should be verified by the subsequent charge-offs and recoveries. Collectively impaired loans governed by FAS 5 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.[2] In contrast, individually impaired loans governed by FAS 114 are usually charged off based on management's judgment.

The OCC (1997) argues that *"bankers and examiners should verify the reasonableness and accuracy of loss estimation methodologies. 'Back testing' should be considered to evaluate accuracy of loss estimates from prior periods."* The SEC (2001) provides similar guidance to banks on loan loss provision validation and documentation

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[2] 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.

in SAB 102, which 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.*

The SEC further argues that to validate the reasonableness of the loan loss allowance methodology, banks should review the trends in loan volume, delinquencies, restructurings, concentrations and previous charge-off and recovery history, including an evaluation of the timeliness to record both the charge-offs and the recoveries. Based on a KPMG (2013) survey of banks, a majority of banks (76 percent) have performed validation by back testing their allowance methodology although some of them only conduct partial model validation. Finally, the SEC argues that validation of banks' provisions depends on internal control over the provisioning process. Consistent with this argument, Altamuro and Beatty (2010) find evidence that provision validity increases after FDICIA internal control provisions take effect.

3. Hypothesis Development

When deciding to participate in a syndicated loan, potential participants may want to know whether lead lenders can and will 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 lenders' 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

lenders' loan management is appropriate and whether lead lenders will persistently provide diligent monitoring. We focus on loan loss provision, which is identified by Beatty and Liao (2014) as banks' largest operating accrual, to capture the lead lender's financial reporting quality.

The OCC's handbook for Allowance for Loans and Lease Losses (2012) suggests that the quality of banks' loan loss provision information depends on whether *"the bank maintains effective systems and controls for identifying, monitoring, and addressing asset quality problems."* This suggests that loan loss provisioning reflects lenders' screening and monitoring effectiveness, consistent with Dou et al. (2014). The SEC also argues that a bank's loan loss provision is influenced by bank organizational structure, business environment and strategy, management style, loan portfolio characteristics, loan administration procedures, and management information systems, suggesting that banks' underwriting and monitoring behaviour impacts loan loss provisioning. The importance of provision or loan loss allowance information to investors is further 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 operation and credit risk.

Based on the discussion in Section 2.2 that provisions are used to reflect management's expectation about future losses, i.e., charge offs, and that subsequent charge offs should be used to validate provisions, 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). Based on these discussions, our first hypothesis is as follows:

H1: The validity of lead lenders' loan loss provision is positively associated with its screening and monitoring ability.

While high provision validity likely signals high screening and monitoring ability, low provision validity may reflect either low ability or a poor signal of the lead lenders' abilities. If participants are unable to assess lead lenders' monitoring and screening ability due to low quality of lead lenders' provision information, they face higher information asymmetry. As a result, lead lenders may be required to hold a larger fraction of loans to ensure that lead lenders' interests are aligned with participating banks' interests and have adequate incentives to monitor the borrower.

If loan loss provision validity provides information about lead lenders' monitoring and screening ability that participants use to evaluate lead lenders, then the importance of lead lenders' provision validity in addressing information asymmetry depends on the existence of alternative information sources about borrowers and lead lenders. We also use this cross-sectional analysis as our main identification strategy to isolate the information content from other omitted correlated variables potentially captured by provision validity.

We first expect that the importance of the provision validity in reducing information asymmetry between the lead lender and syndicate members to be lower when the participants have previous syndicating relationships with the lead lender. These participants should know more about the lead lender's ability from the prior experiences and therefore rely less on lead lenders' accounting information to mitigate information asymmetry. We also expect the importance of provision information in addressing lead lender-participant information problems to be lower when participating banks have independent sources of information about the borrower. If syndicate members have

acquired knowledge about the borrowers from previous lending relationships or if there are other sources of information about the borrower such as credit ratings, then participants can better distinguish whether the lead lender is performing screening and monitoring appropriately.

Finally, the extent of the lead lenders' previous lending relationships with the borrower may also affect the importance of provision information in addressing lead lender-participant information problems. Sufi (2007) and Bharath et al. (2011) argue that the moral hazard problem is less serious within a syndicate if a lead lender has established a previous lending relationship with the same borrower because the incremental monitoring cost will be lower. As a result, because participants are less concerned about the moral hazard issue, the importance of lead lenders' accounting information in addressing the information problem becomes lower. While lead lenders' previous lending relationships have a potential to mitigate moral hazard problems, they may exacerbate the adverse selection concern because the lead lender has larger information advantage about the borrower relative to loan participants (Sufi, 2007). In that case, the lead lenders' own financial reporting quality may not be relevant or become more important.

Based on these arguments, our second hypothesis is:

H2: The validity of lead lenders' loan loss provision is negatively associated with the fraction of loans retained by lead lenders, especially when loan participants lack alternative sources of information about borrowers and lead lenders.

4. Research design

4.1 Sample

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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, lender roles, and percentage of loans retained by each lender within the syndications. We follow Sufi (2007) by using the "lead lender credit" information provided by Dealscan to identify lead lenders.[3] We link Dealscan with Call reports to obtain financial reporting information for lead lenders that are also U.S. commercial banks.[4] 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 7,950 facility-lender pairs found in 6,706 loan facilities in 5,355 syndicated loan packages for 2,468 borrowers syndicated by 125 commercial banks as lead lenders with all available information.[5] In our main analysis, we view each facility-lead lender pair as an observation. That is, in a loan facility with multiple lead lenders, we treat each lead lender as a separate observation.[6] In an additional analysis, we pick the one retaining the largest proportion of loan shares as the main lead lender and allow each facility to have only one observation. Alternatively, we

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[3] That is, a bank is classified as a lead lender in our sample if its "lead lender credit" is "Yes".

[4] U.S. commercial banks arranged 84% of total facilities for our sample period.

[5] 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 lender level because a lead lender may retain different portions for different facilities. Our results are similar if we conduct the analysis at the loan package level.

[6] Twenty nine percent of our sample facilities have more than 1 lead lender, which is comparable to the 31% reported in Sufi (2007).

also average all independent variables and loan ownership variable across multiple lead lenders as another robustness check.

4.2   Research Design

4.2.1 Screening and Monitoring Quality

Our main test variable is a measure of how well a bank's current quarter loan loss provision predicts future charge offs, i.e., provision validity, which we label as *VALID*. Following Altamuro and Beatty (2010), for each bank quarter, we estimate regression (1), using information from the bank's past 20 quarters on a rolling basis with a requirement of non-missing information for at least 12 quarters. Liu and Ryan (2006) find that banks may manage both loan loss provisions and gross charge offs to obscure income smoothing. Thus, we use future net charge-off as the dependent variable and control for earnings before provisions to mitigate the impact of income smoothing. Specifically, *VALID* is measured as the coefficient β_1 in the following model:

$$ChargOff_{t+1} = \beta_0 + \beta_1 * Provison_t + \beta_2 * NONACC_t + \beta_3 * EBP_t + \varepsilon_t, \qquad (1)$$

where *Provision$_t$* 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 by the beginning balance of total loans. *EBP$_t$* is earnings before provision for quarter t scaled by the beginning balance of total assets. *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] This time frame is based on the OCC's (1997) statement that most banks use a 12-month loss coverage period to measure provisions. Higher *VALID* suggests that current period provisions map into future charge offs to a higher extent and that the bank

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[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.

assesses the credit quality of its existing loan portfolios more accurately, reflecting the bank's effective systems and controls for identifying, monitoring, and addressing asset quality problems.

We perform two tests to examine whether *VALID* captures the lead lenders' monitoring and screening ability. The first test examines whether *VALID* is positively associated with a direct measure of lenders' ex-post monitoring quality. Specifically, we examine whether *VALID* is associated with a measure of loss given default. Following the approach taken by Ferguson and Stevenson (2007) and Banerjee and Canals-Cerda (2012), we use the ratio of recoveries to charge-offs to capture loss given default. Ferguson and Stevenson (2007) argue that the best monitors are able to recover the greatest proportion of previously charged off loans (controlling for bank risk measured by the ratio of past due loans to total assets).

We use the following model (2) to estimate the extent to which provision validity captures the ex-post monitoring quality, where we regress one-quarter-ahead recovery ratio, calculated as the ratio of loan recoveries measured at quarter t+1 to charge-offs measured at quarter t, on loan loss provision validity (i.e., $VALID_t$). We expect the coefficient on *VALID* to be positive if provision validity is informative of the banks' monitoring ability.

$$Recovery\ Ratio_{i,t+1} = \delta_0 + \delta_1 VALID_{i,t} + \delta_2\ Recovery\ Ratio_{avg\ i,t} \\ + \delta_3\ Lender\ Characteristics_{i,t} + \upsilon_{i,t} \qquad (2)$$

We control for the average recovery ratio from the past 20 quarters (*Recovery Ratio$_{avg}$*), lender characteristics that may affect both loan recovery and provision validity, including lender size (*Size_L*), non-accruing loans (*NONACC_L*), profitability (*ROA_L*), *Equity*

Ratio (measured as 1- regulatory leverage ratio), and loan loss provision (*Provision*), along with year fixed effects. *SIZE _L* is measured as the natural log of the lead lender's total assets at the beginning of the quarter. We use the ratio of loans relative to total assets *LOAN_L* to control for lead lenders' 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. Detailed definition of variables is provided in the Appendix.

Our second test of whether *VALID* captures the lead lenders' monitoring and screening ability relies on an indirect measure, specifically the equity markets' reaction to borrowers' announcements of new lending agreements. The advantage of this measure is that it has been used extensively to test lenders' monitoring and screening ability, although this measure captures both the actual and perceived association between monitoring and screening ability and our *VALID* measure. Specifically, we use the following model (3) to test whether loan loss provision validity captures lenders' perceived or actual screening and monitoring ability.

$$ABRET_{i,j} = \delta_0 + \delta_1 VALID_j + \delta_2\, Lender\ characteristics_j +$$
$$\delta_3\, Borrower\ characteristics_i + \delta_4\, Loan\ characteristics_i +$$
$$\delta_5\, CUM\_RET + \upsilon_{i,j}\,, \qquad\qquad (3)$$

where *ABRET* is the 5-day [0, 4] market-adjusted abnormal return around the loan announcement dates.[8] Based on the notion that banks with effective systems in underwriting, and identifying and addressing loan problems are likely to have a higher

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[8] Because we have a large sample, we follow Gande and Saunders (2012) and use deal active dates in Dealscan to proxy for loan announcement dates. Maskara and Mullineaux (2011) document that loan announcements made by borrowers typically occur within 1 to 7 days of the loan closing date and 75% of the loans were announced within 5 days after the loan closing dates.

provision quality, we expect the coefficient on *VALID* to be positive. In addition to lender characteristics mentioned above, we use whether the lead lenders is rated (*RATED_L*) and lead lender's credit rating (*SPRATE_L*) to control for the lead lender's own default risk.[9] We further control for the lead lender's reputation (REPUTATION) in the syndicated loan market by including an indicator variable that equals 1 if the lead lender is one of the top 25 lead lenders based on market share (Ball et al., 2008). We also control for the standard deviation of quarterly charge offs (*CHARGESTD_L*) to account for bank operation risk. Finally, because banks are not required to provide provision information for each loan type, we estimate provision validity based on the aggregate loan loss provisions and charge offs. To alleviate the concern that loan compositions might affect the estimated provision validity and the dependent variable at the same time, we include percentage of commercial and industrial loans to total loans as a control variable (*COMMERCIAL_PCT*).

The second set of control variables includes borrower characteristics that previous literature (e.g., Ball et al., 2008) finds important in affecting borrower information environment. Specifically, we control for borrower size, leverage, profitability, and growth. We further control for the borrower's credit rating for rated firms.

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 the 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

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

credit risk of the loan. Finally, we control for the abnormal return before the loan active dates [-20, -1] to account for the potential information leakage. Detailed definition of each variable is provided in the Appendix.

4.2.2 Impacts of Provision Validity on Syndication Structures

After validating whether provision validity reflects lead lenders' screening and monitoring ability, we use the following model (4) to examine the association between lead lenders' loan loss provision validity and fraction of loans retained by lead lenders.

$$SHARE\_LEAD_{i,j} = \delta_0 + \delta_1 VALID_j + \delta_2 Lender\ characteristics_j +$$
$$\delta_3\ Borrower\ characteristics_i + \delta_4\ Loan\ characteristics_i + \upsilon_{i,j} \qquad (4)$$

SHARE_LEAD$_{i,j}$ refers to the percentage of loan facility *i* retained by lead lender *j*. Based on previous research, lead lenders retain a higher proportion of loans when information asymmetries between participants and lead lenders are more severe and when lead lenders cannot credibly commit to perform due diligence because their monitoring effort is unobservable (Sufi 2007; Ball et al. 2008). In addition to lender and borrower characteristics mentioned above, we also control for debt contracting value (*DCV*) of borrowers' accounting information measured following Ball et al. (2008). We expect a negative coefficient on *DCV* based on Ball et al. (2008)

If a lead lender's *VALID* is higher before syndicating a new loan, then participants can infer that the lead lender has higher monitoring and screening ability. However, the use of this information is likely to depend on the extent of alternative sources of information about the borrower and about the lead lenders' monitoring and screening ability. To conduct the cross-sectional analyses, we partition the sample based on whether a borrower is rated and various lending relationship measures as alternative information sources.

We predict that lead arrangers' screening and monitoring ability is less important when borrowers have credit ratings for the following reasons. First, loan participants can rely on rating agencies for additional information about the borrowers. Second, since borrowers have incentives to maintain or improve their credit ratings, rating agencies can serve as alternative monitors. Thus, following H2, we expect *VALID* to be more negative in model (4) for unrated borrowers than for rated borrowers.

The first attenuating lending relationship that may affect the importance of lead lender's accounting information is between lead lenders and participating lenders. For each pair of lead lender 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.[10] 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 lender and participating lenders. *PART_LEAD* is an indicator that equals 1 if the average lending relationship between lead lenders and participating lenders is above the sample median and 0 otherwise. Based on H2, we predict the estimated coefficient on *VALID* is more negative when a lead lender has less prior syndicating relationships with participants (*PART_LEAD* = 0).

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 H2,

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[10] Our results are robust if we measure the lead lender -- participants lending relationship using information of past two or three years.

we expect to find *VALID* to be more negative when the borrower-participants relationship is weak (*BORROWER_PART=0)*.

The last lending relationship that may attenuate the importance of lead lender's accounting information is between a borrower and its lead lenders. We construct an indicator variable *BORROWER_LEAD* that equals 1 if the lead lender in the current loan has served as the lead lender for the same borrower during the past three years. If past lending relationships between a borrower and the lead lender lower the moral hazard concern, thereby lowering the importance of lead lenders' accounting quality, we expect the coefficient on *VALID* to be more negative when *BORROWER_LEAD* equals 0.

5. Empirical results

5.1 Descriptive Statistics

Table 1 reports descriptive statistics for our main variables. We find that lead lenders retain 21.5% of loans on average for our sample. The average value of lead lender-specific *VALID* estimate is 0.348 with a standard deviation of 0.518. We find lead lenders and borrowers have previous lending relationships during the past three years in 19.6% of the sample loans. 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 lenders retain lower proportions of loans when they have stronger relationships with participants and the borrower, when lead lenders have a higher market share, are larger, and have a lower percentage of loans relative to total assets, when the borrowers are larger, and when loans

are less risky as reflected in lower spreads. We find the correlation between *VALID* and

shares retained by lead lenders to be significantly negative, consistent with our prediction.

The correlations among other control variables are largely consistent with the existing

literature and our expectations.

5.2   Main Results

Table 3 reports the first validation of the relation between *VALID* and our proxies

for lender monitoring ability. Controlling for the past history of recovery ratio, we find

that provision validity measured using information from quarter t-20 to t is positively

associated with next period's recovery ratio, suggesting that banks with higher provision

validity derived from better systems and controls for identifying and addressing loan

problems are more effective in monitoring loans in defaults. This finding confirms that

provision validity is indeed informative of lead lenders' monitoring effectiveness.

Before reporting the association between provision validity and loan

announcement returns in Table 4, we first partition the samples based on whether the

borrower is rated by S&P to provide additional identification. The average 5-day

abnormal returns around loan announcements for rated borrowers are 0.0028 versus

0.0046 for unrated borrowers (untabulated), suggesting that markets value bank screening

and monitoring effectiveness more for unrated firms where information problems are

more serious. In Table 4, we further find that for unrated firms *VALID* is positively

correlated with the abnormal returns around loan announcements, suggesting that banks

with higher provision validity are associated with higher screening and monitoring

abilities that equity investors value. In contrast, we do not find the same results for rated

firms where information problems are less serious and bank screening and monitoring is

relatively less important. In addition, the coefficients on *VALID* are significantly different across the two subsamples at the 1% level. These results together suggest that equity investors perceive provision validity as an indication of banks' screening and monitoring effectiveness when the information problems are the most serious.

Based on these validations of the informativeness of provision validity, we examine whether syndicate participants use this provision validity information to address the information asymmetry with the lead lenders, thereby affecting the loan syndication structures. While we use the cross-sectional analyses to identify the effect of provision validity on loan shares, we show the baseline OLS model without attenuating lending relationships in Table 5. The coefficients on *VALID* in both columns are significantly negative. The coefficient on *VALID* in Column (2) after controlling for other lead lender characteristics is -0.014 with a *p-value* of 0.000, suggesting that the lead lender is required to hold a larger fraction of loans when the provision validity is lower. The estimated coefficients on other control variables are consistent with our expectations. For example, we find that banks that have more loan investments on their balance sheets and banks with worse credit ratings retain a higher proportion of loans, suggesting that lead lenders with a riskier profile are required to retain more loans. We also find that lead lenders retain a higher proportion of loans when the information problem between borrowers and lenders is higher as evidenced by the negative coefficients on borrower firm size, on borrowers' debt contracting value of accounting information (Ball et al., 2008), and on whether the borrower is rated (Sufi, 2007). Finally, we document that lead lenders retain a higher proportion for riskier loan packages. Specifically, the coefficient on loan spread is significantly positive. In contrast to the previous literature, we do not

find that banks with higher reputation, measured as higher market share, retain less shares after controlling for bank characteristics.[11]

Table 6 presents empirical results of how the impact of *VALID* on syndication ownership varies with alternative informative sources about the borrowers and lead lenders. In columns (1) and (2), we partition the sample based on whether borrowers have credit ratings. Consistent with H2, we find that the negative association between *VALID* and lead lenders' loan shares is significantly stronger for unrated borrowers, consistent with the argument that the existence of credit ratings makes lead lenders' screening and monitoring activities less important as suggested by Table 4. We also find that *VALID* is only significant when participants and lead lenders have weak syndication relationships in column (3) versus column (4), suggesting that the effect of lead lender's financial reporting on lead lender-participant information problems is more important when participants have less knowledge about the lead lender or have not dealt with the lead lender in the past.

We find that in column (6) the negative coefficient on *VALID* is dampened when participating banks have lent to the same borrower in the past, compared to that in column (5). This result is consistent with the idea that the importance of lead lender's provision validity is lower when participating banks are more familiar with the borrower. Further, we find that when borrowers have past lending relationships with the lead lender, the negative coefficient on *VALID* is attenuated in column (8) relative to column (7). This result is consistent with the explanation that when the overall moral hazard concern is lower, the effect of lead lender's provision validity in addressing information problems

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[11] We find significantly negative coefficient for REPUTATION without controlling for bank characteristics. However, the estimated coefficient becomes insignificant once we control for bank size.

becomes lower. The impact of *VALID* on shares retained by lead lenders is also economically significant. Based on the results in columns (1), (3), (5), and (7), lead lenders retain 0.9% to 1.3% less shares with a one standard deviation increase in *VALID* for affected subsamples compared to the median lead lender holdings of 15.5%. This economic significance is comparable with prior research (e.g., Ball et al., 2008)[12]

In addition to our main cross-sectional results related to *VALID*, we find the debt contracting value of borrowers' accounting information (*DCV*) is more important for unrated borrowers and when the lending relationships between lead lenders, participants, and borrowers are weak. These results are largely consistent with Ball et al. (2008). Overall, the above four cross-sectional analyses provide further assurance that the provision validity measure captures the *informativeness* of banks' screening and monitoring ability that addresses information problems among syndicate members, beyond the mere association with the underlying ability. In addition, these analyses should alleviate the concern that the negative association between the provision validity measure and shares retained by lead lenders is driven by some unobservable bank characteristics.

5.3   Additional analyses

As mentioned above, because our main analysis is conducted at the facility-lead lender level, the same facility is included in the analysis twice if there are two lead lenders. As a sensitivity analysis, we conduct our analysis at the facility level by only examining the main lead lender whose loan share is the largest in the syndicate.[13] We

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[12] Ball et al. (2008) document that a one standard deviation increase in the their debt contracting value construct decreases the lead arranger ownership by approximately 1%, which is a change of about 5.2% of their sample lead ownership median.
[13] We kept the larger lead lender if the two lead lenders retain the same percentage of shares.

continue to find very similar results. For the loan share analysis, we also average all lead lenders' retained share for each loan and allow only one observation per facility. We continue to find similar results.

In addition to year fixed effects, we also control for lender fixed effects in model (4) as a robustness check. While the coefficient on *VALID* in our baseline model becomes insignificant (*p-value = 0.19),* all our cross-sectional results continue to hold. The estimated coefficients on *VALID* for non-rated borrowers, when participants and lead lenders have weak previous relationships, when a borrower and participants have weak prior relationships, and when a borrower and the lead lender have no previous lending relationships are -0.0126 (*p-value = 0.048*), -0.0114 (*p-value = 0.029*), -0.0132 (*p-value = 0.021*), and   -0.0081 (*p-value = 0.048*), respectively. All above coefficients are significantly more negative than those for their corresponding counterpart subsamples.

Since our sample period includes an expansion period and a financial crisis period, it might be interesting to examine whether the impact of provision validity on syndication ownership structure varies between the two periods. We find that the estimated coefficients on *VALID* for non-crisis and crisis period (2008 and 2009) are -0.0150 and -0.0176, respectively. These two coefficients are not significantly different.

Instead of using the relation between loan loss provisions and net charge off to capture financial reporting and internal control quality, we also use earnings persistence as an alternative measure in the robustness check. We find that earnings persistence is significantly negatively associated with lead lenders' share ownership with estimated coefficient of -0.0129 (*p-value = 0.0642)*. This result further reinforces the notion that we

are capturing the informativeness of provision validity instead of the mere correlation between provision and screening and monitoring abilities.

We include earnings before provision as a control variable in model (1) when estimating *VALID* for each bank-quarter to alleviate the concern that banks might also manage charge offs when smoothing earnings (Liu and Ryan, 2006), which could affect the interpretations of our results. Since the estimated coefficient on earnings before provisions in model (1) directly captures the extent to which banks might manage charge-offs to smooth earnings, we include this estimated coefficient as a control variable in model (4). We do not find this variable to be associated with lead lender share ownership. Finally, we control for average lead lender loan ownership in the past 5 years. All the results continue to hold.

6. Conclusion

This study examines whether lead lenders' 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 lenders' provision information to assess lead lenders' screening and monitoring ability, thereby mitigating agency problems arising from the lead lender-participant information asymmetry.

We first validate the relation between provision validity and banks' screening and monitoring abilities by using both ex post monitoring outcomes and cross-sectional variation in equity market reactions to loan announcements made by borrowers. Based on this validation, we argue that high provision validity likely signals high screening and monitoring ability, while low provision validity may reflect either low ability or a poor signal of the lead lenders' abilities. That is, provision validity provides imperfect but

indicative signal about lead lenders' abilities. We further find evidence consistent with the notion that lead lenders' provision information helps address informational problems faced by participating banks. Specifically, we find that the proportion of loans retained by lead lenders decreases with lead lenders' provision validity. To separately identify the information content of the reported accounting numbers from other firm attributes and correlated omitted variables that they may capture, we rely on the cross-sectional analyses and examine whether the relation between the reported accounting numbers and lead lender syndicate share differs based on alternative information sources. We find that this negative association is attenuated when the borrower is rated, when lead lenders and participants have previous syndicate relationships, when participants and the borrower have previous lending relationships, and when lead lenders have lent to the same borrower in the past. These cross-sectional results further assure that provision validity captures the informativeness of lead banks' screening and monitoring effectiveness, not merely the association between provision validity and the underlying ability.

Our study contributes to the debt contracting and accounting quality literature and broadens our understanding of loan syndication process. Complementing prior research that uses borrowers' information environment to infer the lead lender-participant information asymmetry, our study provides nuanced insight on why lead lenders' provision quality also affects syndicated loan structure. 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: Variable definitions

Variables of interest	
SHARE_LEAD	Fraction of the loan facility retained by a lead lender.
VALID	Estimated coefficient β_1 from the following regression. $ChargOff_{t+1} = \beta_0 + \beta_1*Provison_t + \beta_2*NONACC_t + \beta_3*EBP_t$. $Provision_t$ 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. EBP_t is earnings before provision for quarter t scaled by beginning balance of total assets. $ChargOff_{t+1}$ 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_1 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 lenders and loan participants is above the sample median. For each pair of lead lender 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 lender in the current deal has served as the lead lender 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.
Other variables:	
Lead lender characteristics	
SIZE_L	Natural log of total assets.
REPUTATION	Indicator variable that equals 1 if the lead lender is one of the top 25 lead lenders based on domestic market shares for the loan origination year.
LOAN_L	Total loans divided by total assets.
LEV_L	Total liabilities divided by total assets.
COMMERCIAL_PCT	Commercial and industrial loans divided by total loans.
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 lender is rated.
SPRATE_L	Lead lender issuer rating with AAA=1. 0 for non-rated lenders.
CHARGESTD_L	Standard deviation of net quarterly charge offs over the past 20 quarters.
RECOVERYRATIO	Recoveries on loan loss allowances of quarter t+1 divided by the gross charge off for quarter t.
Borrower characteristics	
SIZE_B	Natural log of total assets.
DCV	Debt contracting value of borrower's earnings constructed following Ball et al. (2008).
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 borrower is rated.
SPRATE_B	Borrower issuer rating with AAA=1. 0 for non-rated borrowers.
Loan characteristics	
LOGSPREAD	Natural log of 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.
ABRET	Five-day market-adjusted abnormal returns around the loan announcement dates.

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
VALID	0.348	0.518	-0.038	0.078	0.285	0.509	0.633
PART_LEAD	0.5	0.5	0	0	0.5	1	1
BORROWER_LEAD	0.196	0.397	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
REPUTATION	0.635	0.481	0	0	1	1	1
COMMERCIAL_PCT	0.258	0.111	0.141	0.171	0.237	0.318	0.394
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
RECOVERYRATIO	0.337	0.342	0.066	0.135	0.247	0.412	0.674
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

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																				
REPUTATION (2)	-0.27	1																			
VALID (3)	-0.09	0.11	1																		
PART_LEAD (4)	-0.29	0.50	0.06	1																	
BORROWER_LEAD (5)	-0.04	0.10	0.02	0.11	1																
BORROWER_PART (6)	-0.32	0.12	-0.03	0.18	0.17	1															
CHARGESTD_L (7)	-0.03	0.08	0.25	-0.03	0.03	-0.02	1														
SIZE_L (8)	-0.37	0.46	0.02	0.35	-0.04	0.15	-0.14	1													
LOAN_L (9)	0.27	-0.45	-0.18	-0.20	-0.03	-0.11	-0.19	-0.39	1												
LEV_L (10)	-0.09	0.34	0.11	0.07	0.05	0.06	0.15	-0.09	-0.39	1											
ROA_L (11)	0.13	-0.14	-0.08	0.01	0.02	-0.01	-0.10	-0.20	0.39	-0.19	1										
NONACC_L (12)	-0.14	0.12	0.06	-0.10	-0.08	-0.08	0.21	0.34	-0.18	-0.15	-0.34	1									
SIZE_B (13)	-0.59	0.27	0.06	0.27	0.02	0.24	-0.06	0.51	-0.27	0.02	-0.14	0.22	1								
LEV_B (14)	-0.10	0.04	-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	-0.03	-0.02	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	-0.12	-0.04	-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	-0.02	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	-0.03	-0.01	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	-0.19	-0.04	-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	-0.13	-0.05	-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	-0.14	-0.11	-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	0.28	0.06	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: Association between provision validity (VALID) and the future loan loss recovery rate

	Coefficient	p-value
VALID	**0.147****	**0.022**
Recovery Ratio$_{avg}$	0.437***	<0.001
Size_L	-0.053**	0.033
NONACC_L	-1.572	0.481
LOAN_L	-0.771***	<0.001
EBP_L	7.310	0.162
Equity Ratio	0.773	0.133
Provision	-18.41***	0.008
Year FE	Yes	
Observations	5,579	
R-squared	10.79	

Note: ***, ** and * indicate that the coefficients are significant at the 1%, 5% and 10% levels, respectively. Heteroskedasticity consistent standard errors are clustered at the bank level. Dependent variable *Recovery Ratio* is defined as recoveries on loan loss allowances of quarter t+1 divided by gross charge off for quarter t. Recovery Ratio$_{avg}$ is measured as the average recovery ratio in the past 5 years. EBP_L is earnings before provisions divided by the beginning balance of total assets. Equity Ratio is measured as 1- regulatory leverage ratio.

Table 4: Association between provision validity (VALID) and equity market reaction to borrower loan announcements

VARIABLES	(1) Non-Rated Firms Coefficient (p-value)	(2) Rated Firms Coefficient (p-value)
Bank characteristics		
VALID	**0.006****	**-0.002**
	(0.030)	**(0.290)**
REPUTATION	-0.006	0.003
	(0.107)	(0.169)
CHARGESTD_L	-0.680	2.706**
	(0.504)	(0.029)
SIZE_L	0.001	0.002*
	(0.444)	(0.089)
COMMERCIAL_PCT	-0.020	0.025
	(0.131)	(0.234)
LOAN_L	-0.005	-0.002
	(0.687)	(0.881)
LEV_L	-0.186**	0.022
	(0.026)	(0.710)
ROA_L	-1.522**	-0.152
	(0.017)	(0.852)
RATED_L	0.023**	-0.002
	(0.010)	(0.803)
SPRATE_L	-0.003**	0.000
	(0.016)	(0.989)
Borrower characteristics		
SIZE_B	-0.003	-0.000
	(0.133)	(0.820)
LEV_B	0.006	0.005
	(0.365)	(0.478)
MTB_B	-0.005**	0.001
	(0.029)	(0.450)
ROA_B	0.018	0.018
	(0.649)	(0.292)
SPRATE_B	NA	-0.000
	NA	(0.941)
Loan characteristics		
LOAN_AMT	-0.001	-0.009

	(0.941)	(0.148)
MATURE	0.001	0.000
	(0.622)	(0.761)
TERM	-0.000	0.003
	(0.912)	(0.177)
LOGSPREAD	0.001	0.002
	(0.836)	(0.540)
SECURE	0.005	0.004*
	(0.103)	(0.052)
NCOV	-0.001	-0.004**
	(0.640)	(0.015)
NLENDER	-0.000	-0.000
	(0.733)	(0.543)
SHARE_LEAD	-0.012	0.006
	(0.261)	(0.637)
CUM_RET	-0.054***	0.025
	(0.000)	(0.104)
Year FE	Yes	Yes
R-squared	3.47%	2.84%
Observations	3,216	4,398

Note: ***, ** and * indicate that the coefficients are significant at the 1%, 5% and 10% levels, respectively. Heteroskedasticity consistent standard errors are clustered at the bank level. Dependent variable *ABRET* is the 5-day market-adjusted abnormal return around the loan announcement dates. CUM_RET is measured as the cumulative abnormal returns from 20 days to 1 day before the deal active date.

Table 5: Effects of provision validity (VALID) on syndication ownership structure

	(1)	(2)
Dependent variable = SHARE_LEAD		
Bank characteristics		
VALID	**-0.015*****	**-0.014*****
	(0.000)	**(0.000)**
CHARGESTD_L		-5.358*
		(0.067)
SIZE_L		-0.004
		(0.395)
REPUTATION		0.011
		(0.100)
COMMERCIAL_PCT		-0.055*
		(0.065)
LOAN_L		0.064***
		(0.001)
LEV_L		-0.046
		(0.703)
ROA_L		1.730**
		(0.013)
NONACC_L		-0.328
		(0.493)
RATED_L		-0.050**
		(0.036)
SPRATE_L		0.009**
		(0.024)
Borrower characteristics		
DCV	-0.025**	-0.029**
	(0.028)	(0.014)
SIZE_B	-0.024***	-0.022***
	(0.000)	(0.000)
LEV_B	-0.042***	-0.042***
	(0.001)	(0.001)
MTB_B	-0.005**	-0.003
	(0.025)	(0.180)
ROA_B	-0.059**	-0.070***
	(0.017)	(0.005)
RATED_B	-0.013**	-0.011**
	(0.022)	(0.017)

Loan characteristics		
LOAN_AMT	-0.049***	-0.051***
	(0.000)	(0.000)
MATURE	-0.022***	-0.022***
	(0.000)	(0.000)
TERM	0.034***	0.034***
	(0.000)	(0.000)
LOGSPREAD	0.014***	0.014***
	(0.000)	(0.000)
SECURE	0.011*	0.012**
	(0.051)	(0.047)
NCOV	-0.006***	-0.006***
	(0.002)	(0.003)
NLENDER	-0.006***	-0.006***
	(0.000)	(0.000)
PART_LEAD	-0.032***	-0.031***
	(0.000)	(0.000)
BORROWER_PART	-0.037***	-0.036***
	(0.000)	(0.000)
BORROWER_LEAD	0.007	0.006
	(0.226)	(0.320)
Year FE	Yes	Yes
R-squared	52.8%	53.4%
Observations	7,950	7,950

Note: ***, ** and * indicate that the coefficients are significant at the 1%, 5% and 10% levels, respectively. Heteroskedasticity consistent standard errors are clustered at the bank level..

Table 6: Effects of provision validity (VALID) on syndication ownership structure depending on prior lending relationships

	RATED_B=0 (1)	RATED_B=1 (2)	PART_ LEAD=0 (3)	PART_ LEAD=1 (4)	BORROWER_ PART = 0 (5)	BORROWER_ PART = 1 (6)	BORROWER_ LEAD = 0 (7)	BORROWER_ LEAD = 1 (8)
VALID	**-0.019***	**-0.006**	**-0.021***	**-0.004**	**-0.023***	**-0.004**	**-0.017***	**-0.003**
	(0.000)	*(0.147)*	*(0.000)*	*(0.165)*	*(0.000)*	*(0.200)*	*(0.000)*	*(0.576)*
Lead lender Characteristics								
REPUTATION	0.007	0.012**	0.007	0.012	0.001	0.018***	0.009	0.017
	(0.500)	(0.039)	(0.296)	(0.177)	(0.939)	(0.001)	(0.117)	(0.183)
SIZE_L	-0.001	0.004	0.001	-0.005	0.001	-0.005	-0.005	0.005
	(0.863)	(0.267)	(0.747)	(0.420)	(0.879)	(0.246)	(0.260)	(0.459)
CHARGESTD_L	-1.389	-5.128***	-4.482	-2.783	-5.762	-2.844	-5.073*	-5.554
	(0.642)	(0.005)	(0.222)	(0.328)	(0.193)	(0.270)	(0.100)	(0.183)
LOAN_L	0.087***	0.041	0.083***	0.030	0.049	0.088***	0.039*	0.189***
	(0.001)	(0.116)	(0.003)	(0.402)	(0.129)	(0.000)	(0.068)	(0.000)
LEV_L	-0.052	-0.093	-0.030	-0.216	-0.110	0.019	-0.043	0.067
	(0.709)	(0.538)	(0.852)	(0.321)	(0.589)	(0.910)	(0.734)	(0.837)
ROA_L	1.159	1.890***	2.303**	1.231	2.462*	0.422	1.457*	3.774*
	(0.329)	(0.007)	(0.019)	(0.169)	(0.064)	(0.656)	(0.094)	(0.051)
NONACC_L	-1.237**	0.156	-0.030	0.019	-0.536	-0.069	-0.445	-0.209
	(0.042)	(0.733)	(0.950)	(0.986)	(0.389)	(0.892)	(0.353)	(0.835)
RATED_L	-0.014	-0.059**	-0.043	-0.014	-0.038	-0.056**	-0.032	-0.157***
	(0.544)	(0.012)	(0.104)	(0.746)	(0.213)	(0.045)	(0.192)	(0.000)
SPRATE_L	0.002	0.011***	0.008*	0.002	0.006	0.010*	0.006	0.027***
	(0.584)	(0.008)	(0.071)	(0.793)	(0.236)	(0.050)	(0.148)	(0.000)
COMMERCIAL_PCT	-0.037	-0.010	-0.044	-0.057	-0.052	-0.063*	-0.031	-0.219***
	(0.222)	(0.788)	(0.177)	(0.153)	(0.164)	(0.061)	(0.343)	(0.000)

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Borrower Characteristics								
DCV	-0.054*	-0.010	-0.059***	0.002	-0.080***	0.004	-0.043***	0.035*
	(0.059)	(0.316)	(0.007)	(0.819)	(0.000)	(0.757)	(0.009)	(0.072)
SIZE_B	-0.035***	-0.006***	-0.030***	-0.011***	-0.027***	-0.013***	-0.024***	-0.013***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.006)
LEV_B	-0.048***	0.016**	-0.057***	-0.014	-0.052***	-0.021	-0.037***	-0.047***
	(0.008)	(0.018)	(0.000)	(0.294)	(0.000)	(0.153)	(0.005)	(0.002)
MTB_B	-0.006	0.002	-0.005	0.000	-0.004	-0.002	-0.004	-0.000
	(0.177)	(0.392)	(0.109)	(0.939)	(0.221)	(0.562)	(0.167)	(0.949)
ROA_B	-0.049	-0.036	-0.076*	-0.035	-0.066	-0.053	-0.071***	-0.068
	(0.154)	(0.450)	(0.096)	(0.325)	(0.113)	(0.218)	(0.008)	(0.389)
RATED_B			-0.016**	-0.005*	-0.003	-0.017***	-0.012***	-0.009
			(0.015)	(0.089)	(0.605)	(0.000)	(0.005)	(0.239)
Loan Characteristics								
LOAN_AMT	-0.060***	-0.041***	-0.057***	-0.033***	-0.052***	-0.035***	-0.059***	-0.016
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.460)
MATURE	-0.024***	-0.017***	-0.025***	-0.017***	-0.028***	-0.013***	-0.022***	-0.019***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
TERM	0.018***	0.050***	0.028***	0.041***	0.034***	0.034***	0.034***	0.038***
	(0.005)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LOGSPREAD	0.014**	0.013***	0.016***	0.015***	0.017***	0.014***	0.012***	0.023***
	(0.011)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)
SECURE	-0.000	0.020***	0.005	0.015***	0.012	0.008	0.014**	0.002
	(0.956)	(0.000)	(0.546)	(0.000)	(0.122)	(0.190)	(0.042)	(0.817)
NCOV	-0.006**	-0.000	-0.005*	-0.004**	-0.006**	-0.004*	-0.007***	-0.004
	(0.031)	(0.900)	(0.055)	(0.032)	(0.017)	(0.084)	(0.002)	(0.247)
NLENDER	-0.011***	-0.006***	-0.007***	-0.006***	-0.010***	-0.005***	-0.006***	-0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

PART_LEAD	-0.028***	-0.020***			-0.032***	-0.024***	-0.031***	-0.032***
	(0.003)	(0.000)			(0.000)	(0.000)	(0.000)	(0.002)
BORROWER_PART	-0.035***	-0.024***	-0.044***	-0.021***			-0.034***	-0.050***
	(0.000)	(0.000)	(0.000)	(0.000)			(0.000)	(0.000)
BORROWER_LEAD	-0.000	0.002	0.003	0.002	0.001	0.004		
	(0.974)	(0.711)	(0.621)	(0.745)	(0.887)	(0.470)		
Test of difference between coefficients for VALID	*p=0.029**		*p=0.007***		*p=0.001***		*p=0.005***	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3391	4559	3975	3975	3222	4728	6389	1561
R-squared	54.2%	41.9%	54.8%	43.1%	57.6%	44.8%	53.6%	55.4%

Note: ***, ** and * indicate that the coefficients are significant at the 1%, 5% and 10% levels, respectively. Heteroskedasticity consistent standard errors are clustered at the bank level.