The Effect of Banks’ Financial Reporting on Syndicated Loan Structures

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ABSTRACT

We explore how an accounting measure of information asymmetry between lead and participating lenders influences syndication structures by examining whether lead lenders’ commercial and industrial (C&I) loan loss provision validity affects the fraction of loans they retain. Consistent with C&I provision validity reflecting banks’ underlying screening and monitoring effectiveness, we find that this measure reflects lead lender’s past relationship with borrowers and is associated positively with equity market reactions to loan announcements and future loan loss recovery rate and negatively with future large borrower bankruptcies. We then find lead lender’s loan share decreases specifically with C&I provision validity, but not with non-C&I provision validity. Consistent with an information effect, we further find that this association is attenuated by i) alternative information sources, including borrowers’ credit ratings and industry-level accounting debt contracting value and ii) by previous lead/participant relationships and participant/borrower relationships.
1. Introduction

The importance of diversification benefits in syndicated loans is consistent with the pervasive use of syndication in the corporate loan market. Participant lenders’ delegation of screening and monitoring to lead lenders avoids the duplication of efforts by multiple lenders, but creates a potentially costly additional layer of agency problems between the participants and lead lenders (Leland and Pyle, 1977; Diamond, 1984). Asymmetric information about the lead lenders’ screening and monitoring efforts could give rise to adverse selection and moral hazard problems necessitating larger lead lender loan shares than required for optimal diversification.

Previous research argues that participants can learn about lead lenders’ screening and monitoring ability from past negative lending outcomes. For example, Gopalan et al. (2011) find that lead lenders increase the fraction of loans they retain after large-scale borrower bankruptcies.\(^1\) While borrower bankruptcy likely captures a bank’s screening and monitoring effectiveness, this outcome measure is based on a rare event that also reflects the borrower’s inherent riskiness.\(^2\) We examine whether lead lenders’ accounting information is relevant in mitigating the adverse selection and moral hazard problems within a syndicate. Specifically, we examine whether the lead lenders’ loan loss accounting provides information about their screening and monitoring effectiveness to loan participants.

We focus on the lead bank’s loan loss accounting because the OCC Loan Loss Handbook (2012) emphasizes that “an effective loan review system and controls that identify, monitor, and manage asset quality problems in an accurate and timely manner are essential” to

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\(^1\) Gopalan et al. (2011) report 7% of the lead lenders in their sample experienced large-scale borrower bankruptcy.

\(^2\) Similarly, while lead banks’ nonperforming loans and charge offs may provide useful information about lead bank’s screening and monitoring effectiveness, these outcomes primarily reflect borrowers’ inherent riskiness.
generating high quality loan loss estimates.\textsuperscript{3} Thus, based on the SEC’s (2001) argument that valid loan loss provisions reduce differences between estimated losses and actual subsequent charge-offs, lead lenders’ mapping of provisions into subsequent net charge-offs likely provides information about their screening and monitoring effectiveness. This measure of provision validity depends on the internal control system as well as the ability to forecast future economic losses, beyond the inherent borrower risk that affects the level of provisions, nonperforming assets, and charge-offs.\textsuperscript{4} We predict that if provision validity provides information useful in mitigating agency conflicts between lead lenders and participants, then the fraction of loans lead lenders retain should decrease with this measure.\textsuperscript{5}

We employ two strategies to separately identify provision validity informativeness. First, we compare the effects of provision validity for commercial and industrial (C&I) versus non-C&I loans to isolate the lead bank’s ability to screen and monitor syndicated loans from other bank attributes such as overall risk and operational efficiency. While the riskiness of a bank’s C&I and non-C&I loans are highly positively correlated and effective loan review systems for C&I loans and non-C&I loans share many common objectives,\textsuperscript{6} the two types of loans are separately initiated and monitored and are subject to distinct accounting procedures.\textsuperscript{7} If C&I provision validity specifically captures lead lenders’ ability to screen and monitor commercial borrowers, then this measure should be a more important determinant of lead lender loan shares

\textsuperscript{3} FDIC (2014) expresses similar opinions.
\textsuperscript{4} Given risk reward trade-offs, banks with better screening and monitoring abilities may have a comparative advantage making riskier loans despite higher resulting levels of non-performing loans, provisions, or charge-offs.
\textsuperscript{5} For a practitioner example of how participants may consider the lead bank’s loss recognition incentives and policy when assessing potential agency conflicts see http://www.morrisanderson.com/company-news/entry/the-increasing-use-of-turnaround-consultants-as-advisors-to-bank-groups/
\textsuperscript{6} The correlation of the nonaccrual loan rate (net charge off rate) between C&I loans and non-C&I loans is 0.25 (0.51). Both are significant at 1% level.
\textsuperscript{7} See Section 2.2 for details.
than non-C&I provision validity. Otherwise, if both C&I and non-C&I validity measures only capture bank risk, we would not expect to find a significant difference between the two measures.

Second, we examine how the association between the C&I provision validity and lead lender loan share differs based on alternative information sources about the borrower and lead lender. Specifically, we consider borrowers’ credit ratings, industry-level accounting debt contracting value, prior lead-participant syndication relationships, and prior participant-borrower lending relationships as alternative information sources. We expect less information asymmetry between participants and lead lenders for rated borrowers since credit ratings provide information that disciplines borrowers’ risk taking and helps participants evaluate the borrowers. Similarly, if the borrower’s accounting information is more helpful for evaluating credit quality, we expect less information asymmetry. Further, we argue that previous syndicating relationships reduce participants’ uncertainty about the lead lender’s screening and monitoring effectiveness. Similarly, lead lender’s information advantage should be lower when participants have previously lent to the same borrower. We expect the presence of any of these alternative information sources makes the lead lender’s provision validity less informative to participants.\(^8\)

A necessary condition for C&I provision validity to inform participants is that it reflects lead banks’ screening and monitoring abilities. Thus, we first examine whether this measure depends on lead lender’s past relationship with borrowers and find that it does. Next, we examine whether C&I provision validity is negatively associated with future loss given default captured by the two-period ahead ratio of recoveries to gross charge-offs and find a significant negative association. We also examine the relation between this measure and future borrower

\(^8\) In contrast, if C&I provision validity merely reflects a bank’s operating efficiency and does not inform participants, then we would not observe a significant difference across partitions based on these alternative information sources.
outcomes and find that C&I provision validity decreases with subsequent large-scale borrower bankruptcy likelihood. Finally, we examine the relation between C&I provision validity and equity market reactions to borrowers’ loan announcements and find that market reactions increase with C&I provision validity. For each of these tests we find an insignificant association with non-C&I provision validity.

We next test our predictions about the association between lead lender share and C&I provision validity. First, we find that, controlling for lender and borrower characteristics, the lead lenders’ share decreases with C&I provision validity but not with non-C&I provision validity, with a significant difference between these two measures. These findings suggest that participants might rely on lead lenders’ accounting to infer monitoring and screening ability. The difference in the effects between C&I and non-C&I provision validity suggests the importance of C&I specific versus bank-specific variation. However, these findings do not distinguish between the lead lenders’ provisioning validity informing participants versus merely associating with monitoring and screening ability. Our cross-sectional tests based on alternative information sources and past lending relationships help distinguish between these two possibilities.

We find that the negative association between C&I provision validity and lead lender loan share is attenuated when borrowers receive credit ratings and have high debt contracting value of accounting. We further find an attenuation of the association when lending relationships are strong between the participants and either the lead lender or the borrower. These results together suggest that the C&I provision validity informs participants about lead lenders’ screening and monitoring ability rather than merely capturing an association with the underlying
lender ability. More importantly, these results suggest that C&I provision validity mitigates information asymmetry between lead lenders and participants and affects loan structure.

Our study makes several contributions. We expand the literatures that examine information asymmetry between lenders collectively and borrowers (e.g., Zhang, 2008; Beatty et al., 2008; Bharath et al., 2008) and the effect of borrower accounting on the lead lenders’ loan shares (e.g., Sufi, 2007, and Ball et al., 2008) by focusing on another important agency problem that arises from asymmetric information among lenders and examining how lead lenders’ financial reporting affects information asymmetry among lenders. Our study extends prior research by constructing an accounting-based bank-year level measure to capture screening and monitoring effectiveness that participants use to assess information asymmetry with lead lenders. However, we face the same challenge as do prior studies in differentiating between screening and monitoring abilities (Ball et al., 2008) and thereby similarly attribute our findings to both without attempting to distinguish the two.

Our study also differs from previous research examining the association between lender share and lending outcomes such as borrower bankruptcy (e.g., Gopalan et al., 2011), which often cannot distinguish between lead lenders’ screening and monitoring abilities and the inherent risk level. We find that the association between provision validity and shares of loans retained by lead lenders varies across alternative information sources about both the borrower and the lead lender, which is important in identifying the informational channel between our screening and monitoring measure and lead lender share. Further, using the non-C&I validity measure as a falsification variable makes the interpretation of our results more credible and
addresses potential omitted correlated variable concerns. All these nuances help us make contributions beyond prior research such as Gopalan et al. (2011).

Finally, this study broadens the literature that examines the potential information effects of the provision in mitigating information asymmetry with external investors (e.g., Beaver and Engel, 1996; Wahlen, 1994) by documenting that syndicate participants use the lead lenders’ provision validity to mitigate information problems and that provisions have real economic impacts on syndicate structures. Given the importance of banks’ role in providing funding to borrowers (Beatty and Liao, 2014), it is important to understand the effect of banks’ financial reporting on this process. Finally, using data collected from 10-K footnote disclosures, our study is among the first to separately examine provisions by loan type and document that C&I provisions provide distinct information from non-C&I provisions for capital market participants.

2. Background and Literature Review

2.1 Information Asymmetry in Syndicated Loans

A syndicated loan involves multiple banks jointly offering funds to a borrower. The importance of syndicated lending has increased drastically in the past several decades (Sufi, 2007). Lead lenders develop borrower relationships, negotiate contract terms, and guarantee loan amounts and then find participants 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 and also act as
administrative agents in collecting payments and renegotiating debt terms. Lead lenders acquire public and private information about the borrower in the due diligence process and on an ongoing basis and share appropriate information with participants (Taylor and Sansone, 2007).

Syndicate participants face two types of information asymmetry: that between borrowers and lenders and that between lead lenders and participants. Because the lead lenders’ monitoring efforts are not directly observable, agency problems arise when lead lenders’ and participants’ interests are not perfectly aligned (e.g. due to upfront fees). 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, creating adverse selection problems. Ex post, lead lenders may have incentives to shirk on their monitoring role or to engage in self-serving activities. These agency problems can be mitigated either by increasing lenders’ screening and monitoring incentives via increased loan share (Sufi, 2007) or by reducing the information asymmetry among lenders.

Prior debt contracting studies have primarily focused on how information asymmetry between borrowers and lenders collectively affects debt contracting. For example, Bharath et al. (2008) and Francis et al. (2005) consider the interest rate effect of borrower’s accounting quality on information asymmetry between borrowers and lenders. 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) reports that lead lenders’ share of loans increases with

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9 For example, Morris (2002) notes that “participating banks often believe the Agent is ‘too close’ to the borrower, ‘too tolerant’ of the borrower’s continuing inability to meet projections, and less sensitive to the needs of other syndicate participants.”
borrowers’ credit risk and information opacity, arguing that participants require lead lenders to hold a larger share when the information problem between the borrower and lenders is greater.

Because information asymmetry about the borrower’s credit quality affects the agency conflicts between participants and lead lenders, the ability of borrowers’ accounting information in mitigating information problems among lenders has also been studied. Specifically, Ball et al. (2008) argue that participants may use borrowers’ accounting information to assess lead lenders’ screening efforts and lead lenders’ monitoring effectiveness.

Fewer studies have focused on the importance of lender attributes in measuring screening and monitoring effectiveness and in alleviating information asymmetry among lenders. Previous studies have used lead lender market share (Sufi, 2007) or measures that capture lead lenders overall riskiness, such as credit ratings (Billet et al., 1995), loan loss provision to loan ratios (Johnson, 1997), and borrower bankruptcy (Gopalan et al., 2011). In addition to these possibilities, we further consider how lead lenders’ financial reporting addresses information asymmetry between the lead lender and other syndicate members and how the role of lead lender’s financial reporting varies with alternative information sources that participants may use to evaluate lead lenders’ screening and monitoring effectiveness.

2.2 Loan loss accounting for C&I versus other loans

In its Risk Management Manual of Examination Policies, the FDIC (2018) states that regardless of a “institution’s size, type of operations, and management practices” the objectives of an effective loan review system are:

- To promptly identify loans with well-defined credit weaknesses so that timely action can be taken to minimize credit loss;
- To provide essential information for determining the adequacy of the ALLL;


• To identify relevant trends affecting the collectability of the loan portfolio and isolate potential problem areas;
• To evaluate the activities of lending personnel;
• To assess the adequacy of, and adherence to, loan policies and procedures, and to monitor compliance with relevant laws and regulations;
• To provide the board of directors and senior management with an objective assessment of the overall portfolio quality; and
• To provide management with information related to credit quality that can be used for financial and regulatory reporting purposes.

Despite these common objectives, the underwriting, loan approval, and monitoring of C&I loans differ from that of non-C&I loans such as credit cards based on differences in loan properties. For example, in their examination manual, the FDIC (2007) states “Compared to other types of lending, the underwriting and loan approval process for credit card lending is generally more streamlined. Increasingly, much of the analytical tasks of underwriting are performed by technology, such as databases and scoring systems.” In contrast, when discussing C&I loans the FDIC describes a more involved process including “acquisition of credit information, such as property, operating and cash flow statements; factors that might determine the need for collateral acquisition; acceptable collateral margins; perfecting liens on collateral; lending terms, and charge-offs.” These differences in the underwriting and loan approval processes between C&I and retail loans are reflected in the different accounting standards used for these loans.

According to the FDIC (2014) and the associated FAQ, “larger” commercial loans are impaired on a loan-by-loan basis in accordance with FAS 114 while homogenous retail loans, such as credit cards, and “smaller” commercial loans are subject to FAS 5. The policy statement further notes “an individually evaluated loan that is determined not to be impaired under FAS 114 should be evaluated under FAS 5 when specific characteristics of the loan indicate that it is
probable there would be estimated credit losses in a group of loans with those characteristics.”

For loans within the scope of FAS 114, estimation of credit losses should be based on the following three impairment measurement methods: 1) the present value of expected future cash flows discounted at the loan’s effective interest rate, 2) the loan’s observable market price or 3) the fair value of the collateral if the loan is collateral dependent. For homogenous loans accounted for based on FAS 5, loans with similar risk characteristics are grouped together with each group’s credit losses estimated based on historical net charge-off rate adjusted for environmental factors. Methods for determining historical net charge-off rate vary from a simple average of a bank’s annual net charge-off histories to complex models.

For example, First Horizon states in their 2006 10-K that C&I loans $1 million or greater are reviewed individually in accordance with FAS 114. For C&I loans not considered to be impaired under FAS 114, First Horizon evaluates them by categorizing them in credit grading categories. In contrast, First Horizon states that other homogenous loans subject to FAS 5 are provisioned based on a historical three-year moving average of actual charge-offs with necessary adjustments based on current events, trends, and macro and local economic conditions. The above discussions suggest that the information system or loan review system and controls used for C&I loans and non-C&I loans differ and that provisioning for C&I loans allows management to exercise more judgment than for non-C&I loans, reflecting differences in the loan properties, despite the common objectives of the loan review system.11

10 84% of C&I loans in our sample are larger than $1 million. Thus, we believe most C&I loans and non-C&I loans in our sample are subject to different accounting rules for provisions.
11 Regulators also provide guidance on the maximum number of days past due before retail credit (i.e., non-C&I loans) must be charged off. For example, closed-end (open-end) non-C&I loans must be charged-offs no later than 120 (180) days. Bhat and Ryan (2018) argue management tends not to have much discretion on the recognition of
In addition, the FDIC (2014) points out that, to recognize appropriate loan loss provisions, the bank should have an effective loan review system and controls that identify, monitor, and address asset quality problems in a timely manner. They further indicate that an effective loan review system should place primary reliance on the bank’s lending officers to identify emerging loan problems and provide loan classification or credit grading used in loan loss provisioning while keeping the independence of loan review departments. In addition, regulators believe that banks should consider the change in lending policies and procedures and underwriting standards when recognizing loan losses. This regulatory recommendation is consistent with our observations. For example, in their 2006 10-K, First Horizon states that

To assess the quality of individual commercial loans, all commercial loans are internally assigned a credit grade....The credit grading system is intended to identify and measure the credit quality of lending relationships by analyzing the migration of loans between grading categories...The appropriate relationship manager performs the process of classifying commercial loans into the appropriate credit grades initially as a component of the approval of the loan and has responsibility for insuring that the loan is properly graded throughout the life of the loan. The proper loan grade for all commercial loans in excess of $1 million is confirmed by a senior credit officer in the approval process.

This discussion that the C&I loan officers, who are responsible for commercial loan underwriting and monitoring, are also involved in the C&I loan loss provisioning process further suggests that C&I provisions are reflective of C&I loan-specific screening and monitoring efforts.

2.3 Validation of Loan Loss Provision

The 1997 OCC Advisory Letter (OCC97-8, 1997) highlights that banks must recognize losses in accordance with regulatory charge-off criteria, suggesting that provisions should be

loan loss provisions for non-C&I loans as a result. In contrast, individually impaired loans are usually charged off based on management’s judgment. Given the difference in accounting standards and regulatory requirements, management is allowed more judgment setting provisions for C&I loans than for non-C&I loans. This differential judgement also suggests that the information inferred from C&I provisions should differ from non-C&I provisions.
verified by the subsequent charge-offs and recoveries. The OCC (1997) further 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 provisions based on the losses likely to materialize within a year.

In addition, 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 provision validation and documentation 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 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. Finally, the SEC argues that banks’ provision validity depends on internal control over the provisioning process. Consistent with this view, Altamuro and Beatty (2010) find that provision validity increases after FDICIA internal control provisions take effect, suggesting that provision validity is reflective of a bank’s internal control effectiveness.

### 3. Hypothesis Development

Syndicated loan participants rely on lead lenders to appropriately screen and monitor borrowers, but since participants cannot directly observe lead lenders’ efforts, the participation

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12 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.
level may be affected by both adverse selection and moral hazard problems. To address these problems, participants may use lead lenders’ financial reporting and disclosure to assess their underwriting and monitoring ability. While the level of the loan loss provisions, allowances, charge offs, nonperforming loans, and other credit risk disclosures provide information about overall risk taking, separately these numbers do not capture the risk reward trade-off or the lenders’ screening and monitoring abilities. We argue that the validity or the quality of the provision accounting provides additional information important in assessing banks’ screening and monitoring abilities. We focus on C&I provision validity, which relates directly to the C&I loans included in syndicated lending, and C&I specific review and control systems.

Based on the OCC’s (2012) arguments that loan loss provisions reflect lenders’ screening and monitoring effectiveness and evidence in prior research that banks’ internal controls affect their screening and monitoring effectiveness, provision validity reflective of internal control effectiveness may capture screening and monitoring ability. Thus, we hypothesize that C&I provision validity reflects a bank’s screening and monitoring ability beyond other credit risk measures. Our first hypothesis is:

\[ H1: \quad \text{The validity of lead lenders’ C&I provision is positively associated with their screening and monitoring ability.} \]

If C&I provision validity informs participants about lead lenders’ monitoring and screening ability, then we expect the fraction of loans retained by lead lenders to decrease with that measure. Given differences in screening, monitoring, and accounting for C&I versus non-C&I loans, we expect the association between the lead lenders’ loan fraction to be greater for C&I provision validity than for non-C&I provision validity. Our two-part second hypothesis is:
H2A: The lead lenders’ loan share decreases with lead lenders’ C&I provision validity.

H2B: The lead lenders’ loan share is more negatively associated with C&I provision validity than with non-C&I provision validity.

We further expect lead lenders’ C&I provision validity informativeness to depend on alternative information sources about borrowers and lead lenders. We first expect the importance of the C&I provision validity to be lower when the participants have independent information about the borrower, such as credit rating and borrowers’ accounting information, as these alternative information sources mitigate information asymmetry about the borrower with the lead bank. In addition, we expect that information asymmetry is mitigated if participants have previous syndicating relationships with the lead lender or the borrower, thereby reducing the informativeness of the provision validity. Based on these arguments, our third hypothesis is:

H3A: Lead lenders’ C&I provision validity is more negatively associated with the fraction of loans retained by lead lenders when loan participants lack alternative sources of information about borrowers.

H3B: Lead lenders’ C&I provision validity is more negatively associated with the fraction of loans retained by lead lenders for loan participants with previous relationships with lead lenders or borrowers.

4. Research design

4.1 Sample

We use the Loan Pricing Corporation’s Dealscan database, COMPSTAT, Bank Holding Companies’ quarterly Y9-C reports, and banks’ annual reports filed with the SEC to gather necessary data and construct our sample. We obtain comprehensive information about
syndicated loan contracts from Dealscan for the 1999 to 2010 period. We follow Sufi (2007) by using the “lead lender credit” information provided by Dealscan to identify lead lenders. We link the lead lender information from Dealscan with bank holding companies’ Y9-C reports to obtain financial reporting information for U.S. lead lenders. To ensure an accurate link between these databases, we rely on the historical information for financial institutions provided by National Information Center to account for bank merger and acquisition activities during our sample period. Further, we hand collect loan loss provision information by loan type from banks’ 10-K filings with the SEC. Finally, we obtain borrower attributes from COMPUSTAT.

Our final sample consists of 4,395 facility-lender pairs found in 3,660 loan facilities in 2,946 syndicated loan packages for 1,486 borrowers syndicated by 33 bank holding companies as lead lenders with all available information. 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. In additional analyses, we pick the one lead lender with the largest loan share and allow each facility to have only one observation or only include the facility with the largest loan amount in each package in the regressions. Results are similar.

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13 We exclude data prior to adoption of market-flex pricing in 1999, which allows loan pricing changes based on investor demand. Shares retained by lead lenders should better reflect lenders’ economic incentives after this change (S&P 2011).
14 That is, a bank is classified as a lead lender in our sample if its “lead lender credit” is “Yes”.
15 U.S. banks arranged 84% of total facilities during our sample period.
16 We start with 46 bank holding companies (BHC) with necessary regulatory report data that serve as lead lenders for at least 5 publicly traded U.S. borrowers’ facilities during a given year. We hand collect provision data by loan type from the SEC 10-K filings for 43 of these publicly traded BHCs. We further require that the difference between the total disclosed loan loss allowance in the 10-K filings and that in the regulatory reports be less than 5%. After requiring all necessary control variables and lead-lag information, our final sample includes 33 BHCs. Using the larger sample based on regulatory aggregate provision disclosures that do not distinguish loan types produces similar results, although it does not allow us to compare C&I and non-C&I provision validity.
17 Consistent with the 31% reported in Sufi (2007), 26% of our sample facilities have more than 1 lead lender. In addition, a single package may contain multiple loan facilities. For our sample loan packages, 80% have only one facility and 17% have two facilities. Our main analysis is at the facility - lead lender level because a lead lender may retain different portions for different facilities.
4.2 Research Design

4.2.1 Screening and Monitoring Effectiveness

Our main test variable is a measure of how well a bank’s current year provision predicts next-year’s net charge-offs, i.e., provision validity. For each bank $i$ year $t$, we measure C&I provision validity, $C&I_{VALID\_i,t}$, as $-1^* \text{past three-year (including year } t\text{) average of the absolute value of } (C&I\_NCO_{t+1}/C&I\_PROV_t - 1)$, where $C&I\_NCO_{t+1}$ is C&I net charge-offs (gross charge-offs minus recovery) for year $t+1$ and $C&I\_PROV_t$ is the C&I provision for year $t$. This measure reflects the OCC’s (1997) view that one year is an appropriate window over which the loan loss provision reflects future losses and the SEC’s (2001) argument that valid provisions reduce “differences between estimated losses and actual subsequent charge-offs.”

This parsimonious measure of provision validity differs from the quarterly time series approach in Altamuro and Beatty (2010) because provision by loan type disclosures are only available annually in the 10-K filings. Higher validity suggests that current period provisions map into future charge-offs to a higher extent and that the bank 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. Provision validity for non-C&I loans, $Non-C&I\_VALID\_i,t$, is measured similarly as $-1^* \text{past three-year (including year } t\text{) average of the absolute value of } (non-C&I\_NCO_{t+1}/non-C&I\_PROV_t - 1)$, where $non-C&I\_NCO_{t+1}$ is non-C&I net charge-off for year $t+1$ and $non-C&I\_PROV_t$ is the year $t$ non-C&I provision.

4.2.1.1 C&I provision validity and percentage of repeated borrowers

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\textsuperscript{18} In Section 5.2, we conduct tests verifying that $C&I\_VALID$ reflects banks screening and monitoring ability; in addition, we also examine alternative threshold values ranging from 0 to 1.5 as robustness checks (see section 5.3).
We perform four tests to examine whether $C_{I\_VALID}$ captures the lead lenders’ monitoring and screening ability. Since a lead lender’s screening and monitoring effectiveness should improve as the lender interacts with borrowers more frequently, our first validation test examines whether $C_{I\_VALID}$ is positively associated with percentage of repeated borrowers. 

$$C_{I\_VALID}_{i,t} = \delta_0 + \delta_1 PAST\_BORROWER\_PCT_{i,t} + \sum \delta_k Lender\ attributes_{i,t} + \nu_{i,t} \quad (1)$$

$PAST\_BORROWER\_PCT$ is the percentage of current-year borrowers of syndicated loans to which the bank has lent over the past 3 years measured for bank $i$ year $t$. If repeated interactions improve the screening and monitoring effectiveness, we expect $\delta_1$ to be significantly positive. We control for three sets of lender attributes in the regression. The first set includes four basic bank characteristics such as natural log of total assets ($SIZE_L$), leverage ratio ($LEV_L$), profitability ($ROA_L$), and asset grow rate ($ASSG_L$). The second set includes C&I loan characteristics. We control for lead lenders’ C&I loan concentration using $C_{I\_LOANS}$ calculated as the total C&I loans scaled by total assets. We include $C_{I\_NONACC}$ calculated as the percentage of C&I loans with nonaccrual status to control for C&I loans quality and riskiness. We also include $C_{I\_NCO\_STD}$, calculated as the standard deviation of net quarterly charge off rate of C&I loans based on information from the past 12 quarters because more volatile net charge offs may be harder to estimate. The third set of variables control for riskiness and tangibility of existing borrower portfolios. $PORT\_SPREAD$ is the natural log of the average loan spread of all syndicated loans held by bank $i$ at end of year $t$. $PORT\_ZRANK$ is the average percentile rank of z-scores of borrowers in a bank’s loan portfolios at the end of year $t$. $PORT\_TANGIBLE$ is the average borrower tangibility (tangible assets/total assets). Since we cannot directly observe the composition of a bank’s C&I loan portfolios, we estimate the above
three variables using DEALSCAN information and assume banks carry loans until maturity or for 3 years, whichever is shorter. Detailed definitions of these variables are provided in the Appendix. All models include bank and year fixed effects unless noted otherwise.

4.2.1.2 C&I provision validity and future loss given default

In the second verification test, we examine whether $C&I\_VALID$ is negatively 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 gross 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 $C&I\_VALID$ captures the ex-post monitoring quality, where we regress two-year-ahead commercial loan recovery ratio ($FUTURE\_C&I\_REC\_RATIO$), calculated as the ratio of C&I loan recoveries in year $t+3$ to gross C&I charge-offs in year $t+2$, on $C&I\_VALID$ measured for year $t$. We use two year ahead C&I loan recovery rate as the dependent variable so that the variables used to construct $FUTURE\_C&I\_REC\_RATIO$ do not overlap with the variables used to construct $C&I\_VALID$. We expect the coefficient on $C&I\_VALID$ to be positive if provision validity reflects the banks’ monitoring ability. In addition, we also include $Non-C&I\_VALID$ in model (2) and expect a significantly more positive coefficient on $C&I\_VALID$ than on $Non-C&I\_VALID$.

$$FUTURE\_C&I\_REC\_RATIO_{i,t} = \delta_0 + \delta_1 C&I\_VALID_{i,t} + \delta_2 Non-C&I\_VALID_{i,t} + \delta_3 MKT\_SHARE_i + \sum \delta_k Lender\ attributes_{i,t} + \nu_{i,t} \quad (2)$$
We control for the same three sets of lender attributes as in model (1) as these bank attributes may affect both recovery and provision validity. We also control for the bank’s syndicated loan market share (MKT_SHARE) to ensure that C&I_VALID captures bank monitoring ability after controlling for this common bank reputation proxy. Based on prior research (e.g., Ball et al., 2008), we expect that the coefficient on MKT_SHARE to be positive.

4.2.1.3 C&I provision validity and future borrower bankruptcy

The third verification test examines the association of a direct measure of lenders’ ex-post monitoring quality and C&I_VALID. Specifically, following the Gopalan et al. (2011) argument that large-scale borrower bankruptcy reflects lead arrangers’ inability to screen and monitor, we examine whether C&I_VALID is associated with future large-scale borrower default. We estimate the following model (3) at the bank-year level to examine the extent to which C&I_VALID captures the ex-post monitoring quality, where we regress one-year-ahead large-scale borrower bankruptcy (FUTURE_LARGE_BANKRUPTCY) on C&I_VALID. Following Gopalan et al. (2011), we measure LARGE_BANKRUPTCY for each bank-year as an indicator variable equal to 1 if the total loan amount outstanding to borrowers that file for bankruptcy during that year exceeds 10% of the annual total origination amount by the lead lender. We expect the coefficient on C&I_VALID to be negative if provision validity reflects the banks’ monitoring ability. We also expect a significantly more negative coefficient on C&I_VALID than on Non-C&I_VALID.

\[
FUTURE\_LARGE\_BANKRUPTCY_{i,t} = \delta_0 + \delta_1 C\&I\_VALID_{i,t} + \delta_2 Non-C\&I\_VALID_{i,t} + \delta_3 MKT\_SHARE_{i,t} + \delta_4 LARGE\_BANKRUPTCY_{i,t} + \sum \delta_k Lender\ trait_{i,t} + \upsilon_{i,t} \tag{3}
\]
We control for the incidents of large-scale borrower bankruptcy from the current year and the lender traits that may affect both borrower bankruptcy and provision validity described above. We expect that the coefficient on \( MKT\_SHARE \) to be negative. We exclude bank and year fixed effect in model (3) due to the low frequency of the large-scale borrower bankruptcy.

4.2.1.4 C&I provision validity and borrower market reactions to loan announcements

Our final verification test examines the equity market’s reactions to borrowers’ announcements of new lending agreements. Ross (2010), Godlewski and Sanditov (2018) and Marshall et al. (2018) argue that banks with better screening and monitoring reputation can provide “certification” to shareholders about the type of the borrower. In addition, Ross (2010) argues better monitoring from banks further results in better borrower performance and therefore improves borrower equity value. This is consistent with Lee and Sharpe (2009) who find that stock market reacts positively to new loans with higher bank salary expenses as a proxy for monitoring ability.\(^{19}\) Specifically, we use the following model (4) to test whether \( C&I\_VALID \) captures lead lender’s perceived or actual screening and monitoring ability.

\[
ABRET_{ij} = \delta_0 + \delta_1 C&I\_VALID_j + \delta_2 Non-C&I\_VALID_j + \sum \delta_n \text{Loan trait}_i + \sum \delta_m \text{Borrower trait}_i + \sum \delta_k \text{Lender trait}_j + \delta_s PRIOR\_RET_i + \nu_{ij} \quad (4)
\]

where \( ABRET \) is the 3-day [-1, 1] market-Adjusted abnormal returns around the loan announcement dates. Loan announcement dates prior to 2004 are based on the loan announcement sample in Ross (2010). We rely on the SEC filing dates to identify loans announced after 2004.\(^{20}\) We further require SEC filing dates to be within 10 days of loan

\(^{19}\) Advantages of this measure are that it relies on expected rather than ex-post outcomes and has been used extensively to test lenders’ monitoring and screening ability. A disadvantage is that it captures both the actual and perceived association between monitoring and screening ability and our \( C&I\_VALID \) measure.

\(^{20}\) We thank authors of Ross (2010) and Beatty et al. (2017) for sharing their loan announcement data.
initiation to ensure that the market does not learn it from other sources. To avoid confounding events, in an additional specification, we remove the sub-sample where the borrower announced the new loans in 10-Q or 10-K filings, allow fixed effects for other items announced in the same 8-K filing when the loans are announced via 8-Ks, and control for earnings surprises for those that also announce earnings. Based on the notion that banks with effective systems in underwriting, and identifying and addressing loan problems are likely to have a higher provision quality, we expect the coefficient on $C&IVALID$ to be significantly positive.

We control for loan, borrower and lender characteristics. The loan attributes include the loan amount relative to the borrower’s total assets ($FAMT$), loan maturity ($MATURE$), whether the facility is a term loan ($TERM$), whether the loan has collateral ($SECURE$), and the number of financial covenants ($NCOV$). We use the number of lenders to control for the syndicate size ($NLENDER$). We also include the natural log of the loan spread above LIBOR to control for the overall credit risk of the loan ($LOG\_SPREAD$). The borrower traits include those previously found to be important in affecting a borrower’s information environment (e.g., Ball et al., 2008). Specifically, we control for borrower size ($SIZE\_B$), leverage ($LEV\_B$), profitability ($ROA\_B$), growth opportunities ($MTB\_B$) and whether a borrower is rated ($RATING\_B$). We control for lender attributes and $MKT\_SHARE$ previously discussed in models (1) – (3). All borrower and lender attributes are measured at the end of fiscal year prior to loan origination. In addition, we

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21 After the 8-K disclosure acceleration requirement became effective in August, 2004, 68% of loans are announced via 8-K filings, of which 95% are within 10 days of the loan origination dates. The rest are publicly disclosed in 10-Ks or 10-Qs. We are able to identify announcement dates for 24% of our sample. This is comparable with the 26% of the loan announcements in Maskara and Mullineaux (2011).

22 We find similar results when we only keep the clean sample identified by Ross (2010) or 8-Ks with only a loan announcement (i.e., no other events in the same 8Ks) or with only a loan announcement and earnings release and control for earnings surprises.
control for the abnormal return before the loan active dates [-20, -2] to account for the potential information leakage (PRIOR_RET).

4.2.2 Impact of Provision Validity on Syndication Structures

After verifying that C&IVALID reflects lead lenders’ screening and monitoring abilities, we use model (5) to examine the association between this variable and lead lender’s loan share.

\[
SHARE\_LEAD_{i,j} = \delta_0 + \delta_1 C&I\_VALID_j + \delta_2 Non-C&I\_VALID_j + \sum \delta_n Loan\ traits_i + \sum \delta_m Borrower\ traits_i + \sum \delta_k Lender\ traits_j + \nu_{i,j}
\]

(5)

where \(SHARE\_LEAD_{i,j}\) is the fraction of loan facility \(i\) retained by lead lender \(j\). We control for bank, borrower industry, and year fixed effects. We measure borrower and bank traits at the end of the fiscal year prior to loan origination. We also control for percentage of repeated borrowers (PAST_BORROWER_PCT) since this information is available to loan participants at loan origination. Based on prior research, lead lenders retain a higher loan share 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). Based on H2, we expect the coefficient on C&IVALID to be significantly negative and significantly more negative than the coefficient on Non-C&IVALID. Further, the informativeness of this measure likely depends on the extent of alternative information sources about the borrower and lead lender. Thus, we partition the sample based on alternative information sources including existence of borrower credit rating, borrower accounting debt contracting value, and various lending relationships. Consistent with H3, we expect C&IVALID, but not Non-C&IVALID, to be more negative in model (5) in the absence of these alternative information sources.

\[^{23}\text{In a robustness check, we time-adjust our variables and exclude time fixed effects. We find similar results.}\]
We predict that lead lenders’ screening and monitoring abilities are less important for borrowers with credit ratings both because of the additional information the ratings provide and because rating agencies can serve as alternative monitors. We further predict that the association between \( \text{SHARE\_LEAD} \) and \( \text{C\&I\_VALID} \) will be attenuated for borrowers with higher debt contracting value (\( \text{DCV} \)) accounting because participants may rely on borrower’s accounting information to evaluate credit quality (Ball et al., 2008). Based on H3, we predict the estimated coefficient on \( \text{C\&I\_VALID} \) (but not \( \text{Non-C\&I\_VALID} \)) is more negative when a borrower is not rated by S&P, Moody’s or Fitch or when the borrower is in the low DCV industries.\(^{24}\)

We consider two attenuating lending relationships that may affect the importance of \( \text{C\&I\_VALID} \). The first is the relationship between lead lenders and participating lenders. For each lead and participating lender pair, we count the number of unique loan packages originated during the year prior to current loan initiation involving the two parties and scale by the number of unique loan packages only involving the lead lender.\(^{25}\) \( \text{PART\_LEAD} \) is an indicator that equals 1 if the lending relationship between the lead and participating lender with the strongest lending relationship with the lead bank in the last year is above the sample median and 0 otherwise. Based on H3, we predict the estimated coefficient on \( \text{C\&I\_VALID} \) (but not \( \text{Non-C\&I\_VALID} \)) is more negative when a lead lender has weaker prior syndicating relationship with the participants (i.e., \( \text{PART\_LEAD} = 0 \)).\(^{26}\)

The second attenuating lending relationship is between a borrower and the participants. \( \text{BORROWER\_PART} \) is an indicator variable that equals 1 if at least one participant in the current

\(^{24}\) Following Ball et al. (2008), we measure \( \text{DCV} \) as the extent to which the change in earnings map into rating changes at the industry level i.e., at the two-digit SIC code level.

\(^{25}\) Our results are robust if we measure this relationship using information from the past two or three years.

\(^{26}\) We find similar results partitioning on average prior lending relationships between the lead and all participants.
deal has participated in loans for the same borrower during the past three years. Based on the argument that participants can reduce information asymmetry with lead lenders via prior lending relationships with the borrower, we expect to find $C&I_{VALID}$ (but not $Non-C&I_{VALID}$) to be more negative when borrower-participants relationship is weak (i.e., $BORROWER_PART=0$).

5. **Empirical results**

5.1 **Descriptive Statistics**

Table 1 reports descriptive statistics for our main variables. Panel A reports that the sample average lead lenders retain 19.8% of loans. The mean (median) ratio of future C&I net charge offs to current period provisions is 0.93 (0.92) with a standard deviation of 1.93. The observed distribution is consistent with the OCC’s and the SEC’s arguments that loan loss estimates should on average predict next year’s realized loan losses, although there is substantial cross-bank/year variation. The mean (median) value of lead lender $C&I_{VALID}$ is -0.94 (-0.66) with a standard deviation of 1.34. The autocorrelation of $C&I_{VALID}$ is 70% (not tabulated), suggesting that the bank’s information system and screening and monitoring effectiveness is relatively stable while with sufficient variation for our analyses. By comparison, the mean (median) value of $Non-C&I_{VALID}$ is -0.78 (-0.45) with a standard deviation of 1.18. In 61.3% of sample loans, one or more participants have formed previous lending relationships with the same borrower during the past three years.

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27 For an individual bank observation, $-1 \times $ absolute value of $[\text{Net Charge offs } (t+1)/\text{Provisions } (t) - 1]$ should be -0.08 if the Net Charge offs $(t+1)/\text{Provisions } (t)$ is 0.92. However, the average of the absolute value, especially when the extent of over-provisioning or under-provisioning is large, can be very different from the direct transformation of the average of Net Charge offs $(t+1)/\text{Provisions } (t)$. To illustrate, the validity measure of the 25th percentile of our sample where Net Charge offs $(t+1)/\text{Provisions } (t)$ is 0.3671 should be -0.6329 and the valid measure of the 75th percentile where Net Charge offs $(t+1)/\text{Provisions } (t)$ is 1.5179 should be -0.5179. While the average of the Net Charge offs $(t+1)/\text{Provisions } (t)$ of the 25th and 75th percentiles is approximately equal to the sample average (i.e., 0.92), the average of the valid measure at these two points is -0.5754 (i.e., the average of -0.6329 and -0.5179), which is quite different from the computation of the valid measure for the sample average (i.e., -0.08).
Panel B partitions the sample at the bank-year level by median C&I _VALID_. Consistent with our expectations, banks with higher C&I _VALID_ also have higher non-C&I loan provision validity. We also find that banks with higher C&I _VALID_ have higher non-accruing loans and earnings, but lower standard deviations in charge offs.\textsuperscript{28} Consistent with the above observation, banks with higher C&I _VALID_ issue loans with higher loan spread (PORT_SPREAD) to borrowers with higher tangibility (PORT_TANGIBLE). In addition, the propensity for future large-scale borrower bankruptcy is 0.9\% for banks with high C&I _VALID_, significantly lower than the 6.9\% for banks with low C&I _VALID_, whereas no significant difference exist in borrower z-scores. Combined, these univariate comparisons provide no evidence that banks with high C&I _VALID_ measures simply lend to less risky borrowers.

We report Pearson correlations in Table 2. Panel A reports correlations of main variables measured at the loan facility level. Consistent with the existing literature, we document that SHARE_LEAD is negatively correlated with MKT_SHARE but is not significantly correlated with C&I _VALID_, although inferences should be made with controls for bank and borrower attributes.\textsuperscript{29} Further, the negative correlation between SIZE_B and C&I _VALID_ suggests that banks with high C&I _VALID_ actually lend to smaller borrowers. We also document a negative correlation between SIZE_B and both SHARE_LEAD and LOG_SPREAD. The correlations among other control variables are largely consistent with existing research and our expectations.

\textsuperscript{28} The ratio of loans to total assets is about 60\%, including 16.5\% C&I, 29.5\% real estate, and 14\% consumer/others.

\textsuperscript{29} We find that SIZE_B is significantly negatively correlated with both C&I _VALID_ and with SHARE_LEAD. The combination of these pairwise correlations makes it difficult to interpret the insignificant pairwise correlation between C&I _VALID_ and SHARE_LEAD. We find a significant correlation between the demeaned SHARE_LEAD and C&I _VALID_ once we control for SIZE_B.
Table 2 Panel B reports correlations between main variables measured at the bank-year level. Consistent with Table 1 Panel B, we find $C&I_{VALID}$ is negatively correlated with $FUTURE_{LARGE\_BANKRUPTCY}$ and $C&I_{NCO\_STD}$ and positively correlated with $C&I_{NONACC}$. We find no evidence that $C&I_{VALID}$ is correlated with portfolio spreads, tangibility, or z-score ranks. Finally, both Panel A and Panel B report highly positive correlations between $SIZE_L$ and $MKT\_SHARE$, suggesting it is challenging to disentangle the effect of bank size from the market share measure.

5.2 Verification of $C&I_{VALID}$ Measure

Table 3 Panel A reports the first verification test of the $C&I_{VALID}$ measure. We find $C&I_{VALID}$ to be significantly positively associated with percentage of borrowers with lending relationships with the bank ($PAST\_BORROWER\_PCT$), whereas no such association exists for $Non-C&I_{VALID}$. This result suggests that the screening and monitoring effectiveness increases as the lead lender interacts with the same set of borrowers.

Table 3 Panel B shows the results of our second verification analysis. We find, while $C&I_{VALID}$ is positively associated with two-year ahead recovery rate, the association between $non-C&I_{VALID}$ and future recovery rate is not different from 0. This finding further suggests that $C&I_{VALID}$ is reflective of a bank’s monitoring and enforcement ability.$^{30}$

Panel C shows the results of our third verification test. Controlling for the current period borrower bankruptcy, $C&I_{VALID}$ is negatively associated with next period $LARGE\_BANKRUPTCY$, suggesting that banks with higher provision validity are more effective

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$^{30}$ $MKT\_SHARE$ is significantly positively associated with future recovery rates in the specification excluding bank fixed effects. However, this association becomes insignificant after including bank fixed effects.
in monitoring borrowers and preventing bankruptcy.\textsuperscript{31,32} In contrast, we do not find the same relation between \textit{LARGE\_BANKRUTCY} and \textit{Non-C\&I\_VALID}, suggesting that \textit{C\&I\_VALID} does not likely capture omitted variables such as banks’ overall risk taking or operational efficiency. These results hold after controlling for \textit{MKT\_SHARE}.\textsuperscript{33}

Table 3 Panel D reports the results of the last verification test of the relation between \textit{C\&I\_VALID} and our proxies for lender monitoring ability. Column (1) and (2) report regression results for all loan announcements. Column (3) and (4) report results excluding loans announced in 10-Ks or 10-Qs and only include loan announcements either in the sample of Ross (2010) or via 8-K filings.\textsuperscript{34} To further control for the potential confounding events, we include 8-K item fixed effect in Column (3) and (4) and control for earnings surprises when earnings release is also contained in the 8-K filings. We document that \textit{C\&I\_VALID} is positively associated with equity market reactions around loan announcements while the coefficient on \textit{Non-C\&I\_VALID} is insignificant, with the difference between the two coefficients being significant. This suggests that banks with higher \textit{C\&I\_VALID}, but not those with higher \textit{Non-C\&I\_VALID}, have higher screening and monitoring abilities valued by equity investors.

\subsection*{5.3 \textit{C\&I\_VALID} and Syndicated Loan Structures}

\textsuperscript{31} The interpretation of the effect of provision validity on borrower bankruptcy based on the regression coefficients is very similar using the incremental Pesudo-\textit{R}\textsuperscript{2}. \textit{C\&I\_VALID} and \textit{Non-C\&I\_VALID} are associated with 3.57\% and 0.12\% incremental Pesudo-\textit{R}\textsuperscript{2}, respectively, where the Pesudo-\textit{R}2 of the baseline model is 37.56\%.

\textsuperscript{32} This result is robust to using two to three years ahead large-scale borrower bankruptcy.

\textsuperscript{33} To ensure we are not capturing bankruptcy negotiation, we first control for the percentage of loans subsequently amended with similar findings. Second, we partition the sample based on the proportion of borrowers with bond ratings to capture the possibility that bondholders restrict bankruptcy negotiations. We do not find more pronounced results in the subsample without bondholders, suggesting that our results are not driven by bankruptcy negotiations.

\textsuperscript{34}Ross (2010) states that “to ‘clean the event window,’ I checked a \([-2,0]\) trading day window around the announcement date for confounding news such as dividend declarations, acquisitions or divestitures, litigation, earnings announcements, or other forms of capital raising. Where such stories are found, the announcements are dropped”.
5.3.1 Main Analysis

Given the verification test results suggesting that C&I_VALID reflects banks’ monitoring and screening ability, we next examine how this variable affects loan syndicate structures. In the first column of Table 4, where we do not control for bank fixed effects, SHARE_LEAD decreases with both C&I_VALID and MKT_SHARE, suggesting that the lead bank’s reputation mitigates agency conflicts between lead lenders and participants. However, when we control for bank fixed effects, MKT_SHARE becomes insignificant in column (2). In column (3), we control for lender traits along with bank fixed effects. The coefficient on C&I_VALID is significantly negative and significantly more negative than the coefficient on Non-C&I_VALID, which is insignificant. These findings are consistent with H2 and suggest that C&I_VALID, even relative to Non-C&I_VALID, is informative of lead lenders’ ability in screening and monitoring C&I borrowers thereby mitigating lead lender-participants information problems. In addition, the incremental significance of C&I_VALID relative to Non-C&I_VALID suggests that this finding is unlikely to be driven by banks’ overall efficiency and risk taking. The effect of C&I_VALID on SHARE_LEAD is also economically significant. A one-standard-deviation increase in C&I_VALID is associated with a 0.6% decrease in SHARE_LEAD representing 4.2% of the sample median.

The coefficients on control variables are generally consistent with our expectations. For example, lead lenders retain a higher proportion of loans when the information problem between

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The coefficient on MKT_SHARE, while higher in column (2) than (1), is insignificant due to an increased standard error after including bank fixed effects, perhaps from limited within-bank variation in MKT_SHARE. In contrast, results in column (2) and (3) suggest that C&I_VALID exhibits sufficient within-bank variation across time.

We find similar results when we remove banks in the top charge offs and provisions deciles in robustness checks.

Ball et al. (2008) find that a one standard deviation increase in their debt contracting value construct results in a 1% decrease in the lead arranger ownership which is about 5.2% of the sample median.
borrowers and lenders is higher as evidenced by the negative coefficients on \(\text{SIZE\_B}\) and on \(\text{RATED\_B}\) (Sufi, 2007). Finally, we document that lead lenders retain a higher proportion for riskier loan packages as evidenced by the positive coefficients on \(\text{LOG\_SPREAD}\) and \(\text{SECURE}\).

5.3.2. Alternative Information Sources

Table 5 presents results of how the impact of \(\text{C\&I\_VALID}\) on syndication ownership varies with alternative information sources about the borrowers. In columns (1) and (2), we partition the sample based on whether the borrower is rated by S&P based on COMPUSTAT or has a loan rating provided by S&P or Moody’s based on LPC loan rating data,\(^{38}\) where \(\text{Rate\_LN}\) represents the subsample if either the borrower or the syndicated loan is rated. Consistent with H3A that the existence of credit ratings makes information about lead lenders’ screening and monitoring activities less important, the negative association between \(\text{C\&I\_VALID}\) and \(\text{SHARE\_LEAD}\) is more pronounced for unrated borrowers than for rated borrowers. In columns (3) and (4), we partition based on issuer ratings by either S&P, Moody’s, or Fitch using the FISD database and find similar results. Based on the results in columns (1) and (3), lead lenders retain 1.60%, and 1.17% less shares with a one standard deviation increase in \(\text{C\&I\_VALID}\) for unrated firms compared to the sample median lead lender loan holdings of 14.3%.

To test whether borrowers’ financial reporting also helps participants evaluate borrowers’ credit quality, thereby reducing the information asymmetry with the lead bank, we investigate whether the coefficient on \(\text{C\&I\_VALID}\) varies with the borrower’s accounting debt contracting value (i.e., \(\text{DCV}\) constructed following Ball et al., 2008) measured at the two-digit SIC code level. In columns (5) and (6) we partition the sample based on \(\text{DCV}\) and find a significant

\(^{38}\) Due to the high cost of acquiring updated loan ratings information, we use loan ratings by S&P or Moody’s for loans originated before May 2009, which we have access to.
negative coefficient on C&I_VALID but not on Non-C&I_VALID for borrowers in below median DCV industries. We do not find the same results for those with higher than median DCV. These findings further bolster our evidence that C&I_VALID informs participants about the lead banks’ screening and monitoring ability.\textsuperscript{39}

The results of our tests considering the importance of participants’ relationships are presented in Table 6. In columns (1) and (2) we consider the prior syndication relationships between participants and lead lenders. Consistent with H3B, the negative association between C&I_VALID and SHARE_LEAD is significantly weaker when participants and lead banks have stronger prior syndication relationships. This suggests that indicators of lead lenders’ abilities become less important when participants can learn lead lenders’ ability from past syndications.

Finally, in column (3) the negative coefficient on C&I_VALID is diminished when at least one participant in the lending syndicate has lent to the same borrower in the past, compared to that in column (4). In contrast, we do not find the same pattern in results across different partitions for Non-C&I_VALID.\textsuperscript{40} These results are consistent with C&I_VALID being less important when participants are more familiar with the borrower. The impact of C&I_VALID on SHARE_LEAD is also economically significant. Based on the results in columns (1) and (3), lead lenders retain 1.08\%, and 1.13\% less shares with a one standard deviation increase in C&I_VALID for affected subsamples compared to the sample median SHARE_LEAD of 14.3\%.

\textsuperscript{39} For the subsample of borrowers in low DCV industries, a one-sigma increase in C&I_VALID is associated with a 0.82\% decrease in SHARE_LEAD. This is economically significant compared to the sample median 14.3\%.

\textsuperscript{40} We also construct a continuous variable, BP_PCT, as the percentage of syndicate participants having lending relationships with the borrower and regress SHARE_LEAD on BP_PCT and Borrower_Part. While the coefficient on Borrower_Part is significantly negative, the estimated coefficient on BP_PCT is insignificant. In addition, the coefficient on the interaction term Borrower_Part*C&I_VALID is significantly positive whereas the coefficient on BP_PCT* C&I_VALID is insignificant. These results provide no evidence that the previous borrower-participant interactions measured in continuum are more important than the indicator variable in affecting syndication structures.
Overall, these four cross-sectional analyses provide further assurance that C&IVALID 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 unobservable bank attributes such as the riskiness of the loan portfolios.41

5.3.3 Change Analysis around Bank Mergers

To further address endogeneity concerns, we test the association between C&IVALID and SHARE LEAD around bank mergers. We contend that after a large-scale merger, the pre-merger C&IVALID measure becomes less indicative of the bank’s screening and monitoring ability for loans initiated after the merger. In contrast, when mergers are small or nonexistent, the historical C&IVALID should still be informative of the bank’s type. In Table 7 columns (1) and (2), we follow prior research (e.g., Beatty and Liao, 2011) by partitioning the sample based on whether bank-year asset growth exceeds 20%. The M&A subsample also includes banks that acquired at least one other bank with assets equal or greater than 10% of its own assets, otherwise banks are classified as “no M&A”. We find that the effect of C&IVALID is only significant and significantly different from Non-C&IVALID in the “no M&A” subgroup.

5.3.4 Informativeness during Differing Economic Conditions

41 Although C&IVALID is constructed using only C&I provisions, the measure includes both syndicated and non-syndicated loans. To evaluate the role of syndicate loans, we use LPC data to estimate the percentage of syndicated loans relative to total C&I loans. Assuming 50% of revolving facilities are utilized, each bank takes equal loan share when the share information is missing, and banks carry loans until maturity or for 3 years whichever is shorter, we calculate the ratio of total syndicated loans to total C&I loans for each sample bank-year. The median ratio is 0.7 based on the above assumptions and increases to 0.84 if we assume all loans are carried until maturity.
Similar to the effect of M&A, \( C&I\_VALID \) may become less informative when unexpected economic conditions prevent lead banks from correctly forecasting expected losses. Our findings are consistent with this expectation. In Columns (3) and (4) of Table 7, we partition the sample based on recessionary versus non-recessionary periods. We find that in the NBER recessionary periods, 03/2001-11/2001 and 12/2007 – 06/2009, \( C&I\_VALID \) is insignificant. This suggests that \( C&I\_VALID \) becomes noisy in the economically volatile recessionary periods when provisions are harder to estimate and banks’ ability to forecast future losses decreases. In addition, results that vary with economic conditions are consistent with Gopalan et al. (2011) who find a significant association between screening and monitoring efforts captured by borrower bankruptcy only during non-recession years.

5.4 Alternative Mechanism Addressing Lead Lenders’ Screening and Monitoring Abilities

Our primary tests consider \( SHARE\_LEAD \) as the mechanism used to address poor screening and monitoring abilities. Following Ivashina (2009), we also consider an alternative pricing mechanism that compensates participants for information asymmetry costs related to screening and monitoring efforts. Specifically, she notes that, adjustments to upfront fees received only by the lead lender, can be used to compensate participants for information asymmetry without altering the overall rate charged to the borrower. Following her argument, we examine whether lead lenders charge lower upfront fees when \( C&I\_VALID \) is low. We report these results in Table 8. Consistent with Ivashina (2009), the upfront fee information is available for only 16% of our sample observations. We document a significantly positive association between \( C&I\_VALID \) and the percentage of upfront fees to total borrowing costs. The coefficient
on \( C\&I\_VALID \) is also significantly higher than that on \( \text{Non-C}\&I\_VALID \). This finding further supports our argument that \( C\&I\_VALID \) helps participants assess lead lenders’ abilities.\(^{42}\)

5.5 Additional Untablulated Analyses and Robustness Tests

5.5.1 Threshold for Validity Measures

\( C\&I\_VALID \) is constructed based on bank regulators’ argument that current-year loan losses should predict actual losses realized in the next year. Although the relation between \( C\&I\_VALID \) and our proxies for lender monitoring ability suggests that a threshold of 1 is appropriate,\(^{43}\) as a robustness check, we examine the sensitivity of our loan syndication structure analyses to alternative threshold values including 0, 0.5, 0.75, 0.92 (sample mean), 1.25, and 1.5. Most results continue to hold when the threshold value is set relatively close to 1 (0.75 – 1.25). However, we do not find consistent results in the verification or cross-sectional tests when we set the threshold value as 0, 0.5, or 1.5. Together, these results are consistent with the OCC’s one-year loss criteria and suggest that 1 is an appropriate threshold value.

We also partition our sample by whether a bank over-provisions or under-provisions. We argue that regardless of whether the provision is more or less than the subsequent charge-offs, deviations from subsequent charge offs either indicate weaker or less informative of screening and monitoring abilities. We find that the ratio of \( \frac{NCO_{t+1}}{PROV_t} \) for C&I loans exhibits

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\(^{42}\) Prior research (e.g., Berlin and Loeys, 1988; Rajan and Winton, 1995) suggests \( \text{SHARE\_LEAD} \) can either substitute or complement covenants and collateral use consistent with the lack of significant correlations between these variables and \( \text{SHARE\_LEAD} \).

\(^{43}\) When we change the \( C\&I\_VALID \) threshold to either 0.75 or 1.25, the coefficient becomes insignificant in the equity return test and significant at the 10% versus 5% level in the bankruptcy test providing some evidence that a threshold of one better captures lender’s monitoring ability, consistent with the OCC’s one-year loss benchmark.
significant positive (negative) association with \textit{SHARE\_LEAD} when it is greater (less) than 1 while the same ratio for non-C&I loans is not associated with \textit{SHARE\_LEAD}.

5.5.2 Alternative Validity Measures

We examine several alternative validity measures. First, for each bank \textit{i} year \textit{t}, instead of using the average of the absolute value of \((\text{NCO}_{t+1}/\text{PROV}_t - 1)\) in the past three years, we construct an alternative measure using only the average ratios from years \textit{t-2} and \textit{t-1} and substitute this measure in models (4) and (5). This allows the equity market and loan participants to fully observe all variables used to construct \textit{C&I\_VALID}. Our findings continue to hold.

Second, we examine the validity of C&I loan loss allowances. Since the sample average ratio of \textit{C&I\_NCO}_{t+1}/\textit{Allowance}; is 0.3, we construct the variable \textit{C&I\_VALID\_ALLL} as -1 times the ratio of the sum of net charge offs for the next three years (sum of \textit{NCO}_{t+3}, \textit{NCO}_{t+2}, and \textit{NCO}_{t+1}) to loan loss allowances (\textit{ALLL}_t) minus 1. This alternative measure is positively correlated with \textit{C&I\_VALID} \((\rho = 0.22)\) and produces similar results. However, because this measure assumes three years of perfect foresight, we rely primarily on provision validity.

Our third alternative validity measure (\textit{AGGR\_VALID}) is based on the aggregate provisions and net charge offs without partitions by loan types using the slightly larger regulatory data sample. \textit{AGGR\_VALID} is positively associated with the loan announcement returns and negatively associated with \textit{SHARE\_LEAD}. In addition, instead of using annual data, we also constructed this alternative test variable \textit{AGGR\_VALID} using quarterly data on a moving average basis. Our results are robust to this alternative specification.

5.5.3 Possible Effects of Large-scale Borrower Bankruptcy
We control for LARGE_BANKRUPTCY and MKT_SHARE to ensure that we capture information incremental to bank reputation documented in the prior research. While prior borrower bankruptcy is positively correlated with SHARE_LEAD, SHARE_LEAD continues to decrease with C&I_VALID. This suggests that while lead banks’ past reputation is useful for participants, provision validity provides additional and useful information.

5.5.4 Possible Effects of Collateral

To address the possibility that borrower’s collateral drives our findings, we partition by collateral requirement to allow coefficients to differ with collateral requirements. The effect of C&I_VALID on SHARE_LEAD does not vary with this partition, suggesting that our findings are not driven by collateral requirements.\(^{44}\) We also find that the coefficients on C&I VALID do not vary with borrower tangibility, suggesting that our findings are not likely driven by banks’ collateral requirements.

5.5.5 Possible Effects of Loan Sales

Although syndicated loan contracts sometimes constrain lead lenders’ secondary market loan sales, such sales are possible. In this case, SHARE_LEAD becomes a less valid proxy for lead lenders’ monitoring and screening incentives. Since revolving loans are less likely to be sold in the secondary market, we first remove all 660 term loans from the analyses with similar results. For revolving loans, we further partition the sample by maturity. For the 21.5% of the revolvers that are 364-day loans we find an insignificant association between SHARE_LEAD and C&I VALID. For the remaining revolvers with average maturity of 4.07 years,\(^{45}\) we find a

\(^{44}\) Because the Dealscan collateral information is not complete, we first treat loans with missing collateral data as ones with collateral and then remove the observations with missing collateral data. The findings continue to hold.

\(^{45}\) The average maturity of term loans is 3.9 years.
significantly negative association between \textit{SHARE\_LEAD} and \textit{C\&I\_VALID}. These results suggest that banks’ screening and monitoring is most important for longer maturity loans and those less likely to be traded in the secondary market. To further explore the importance of potential loan sales while controlling for bank and borrower heterogeneity, we examine a sub-sample of 352 term loan tranches with loan spreads above 120 basis points since these loans are more likely to be sold in the secondary market\textsuperscript{46} and 285 revolving tranches from the same loan packages. This approach holds constant lender, borrower, and loan package characteristics. \textit{C\&I\_VALID} is significantly associated with \textit{SHARE\_LEAD} only for the revolving tranches, not for term loan tranches that are more likely to be sold.

5.5.6 Private versus Publicly Traded Borrowers

We compare the coefficients on \textit{C\&I\_VALID} between public and private borrowers. \textit{SHARE\_LEAD} is missing for 93% the facilities for privately held borrowers. For the sample of 342 (747) lead lenders–facility observations for private borrowers the estimated coefficient on \textit{C\&I\_VALID} is -0.0089 (-0.0084) when we do (not) require or control for total borrower sales. Although these coefficients are 70% larger than for public borrowers, it is not statistically different from 0 potentially due to the small sample size.

5.5.7 Participant Holdings of Loans

We also examine whether \textit{C\&I\_VALID} affects the share of loans held by participants. Specifically, we classify each participant into one of the two groups based on the past interactions between the participant and the lead lenders (i.e., the number of packages involving both parties during the past year). We find that 1) participants hold a higher share if they have a

\textsuperscript{46} Wittenberg-Moerman (2008) documents that loans traded in the secondary loan market tend to be riskier. Thus, we use loans with spreads above the 120 basis-point sample median to proxy likelihood of trading.
strong relationship with the lead lender and 2) $C&I\_VALID$ is positively associated with participants’ share only when the relationships are weak.\textsuperscript{47}

5.5.8 Independence of Observations

Further, we address the independence of the sample observations because our facility-lead lender level analysis may include more than one facility per package and the same facility is included twice when there are two lead lenders. When we conduct our analysis at the package level by keeping the facility with the largest loan amount or at the facility level by only examining the main lead lender whose loan share is the largest we continue to find very similar results.\textsuperscript{48} Also, because our main test variable is measured at the bank level, we alternatively calculate the average of all borrower and loan characteristics and re-estimate model (5) at the bank-year level with similar findings.\textsuperscript{49}

5.5.9 Possible Effects of Influential Observations

Finally, we address the importance of influential observations. The syndicated loan market is highly concentrated with the aggregated market share of the top-4 lead arrangers exceeding 70% in recent years. We consider whether $C&I\_VALID$ is less relevant in assessing these major lead arrangers, and find that it is more important for non-top 4 lead lenders. We also

\textsuperscript{47} While having more participants reduces each participant’s exposure, it does not increase the lead lenders screening and monitoring incentives and therefore cannot substitute for \textit{SHARE\_LEAD}. Also, if the lead bank has low monitoring effectiveness, it may be difficult to find willing participants.

\textsuperscript{48} We kept the larger lead lender if the two lead lenders retain the same percentage of shares.

\textsuperscript{49} The estimated coefficients and (p-values) in this specification are -0.010 (0.002) for $C&I\_VALID$ and -0.003 (0.269) for non-$C&I\_VALID$. 

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partition our analyses at the median of $C&I\_VALID$. We continue to find negative coefficients on $C&I\_VALID$ in both partitions, with difference not significant.\textsuperscript{50}

6. Conclusion

This study examines whether lead lenders’ C&I provision validity affects syndicated loan structures. We argue that syndicate participants may use lead lenders’ provision information to assess their screening and monitoring effectiveness, thereby mitigating agency problems arising from the lead lender-participant information asymmetry.

We first verify the relation between C&I provision validity and banks’ screening and monitoring effectiveness using both ex post monitoring outcomes and cross-sectional variation in equity market reactions to borrower loan announcements. Based on this verification, we argue that high C&I provision validity likely signals high screening and monitoring effectiveness. We further find evidence consistent with lead lenders’ provision information helping address informational problems faced by participants. Specifically, lead lenders’ loan shares decrease with their C&I provision validity but not with their non-C&I provision validity, suggesting C&I provision validity captures characteristics specific to syndicated lending rather than bank-specific risk taking or operational efficiency.

To separately identify the information content of the reported accounting numbers, we further rely on cross-sectional analyses that examine whether the relation between the reported provision numbers and lead lender syndicate share differs based on alternative information sources. The negative association between C&I provision validity and lead lender loan share is

\textsuperscript{50} In addition, to avoid extreme values and skewness of these measures, as an alternative to winsorization, we use the decile or percentile rank of $C&I\_VALID$ and $Non-C&I\_VALID$ as test variables. Alternatively, we remove the observations with $C&I\_VALID$ in the bottom 5% of the distribution. Our results are robust to these specifications.
attenuated when the borrower is rated, when the borrower accounting information has higher debt contracting value, when lead lenders and participants have strong previous syndicate relationships, and when participants and the borrower have previous lending relationships. 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 literatures and broadens our understanding of the loan syndication process. Complementing prior research that uses borrowers’ information environment to infer the lead lender-participant information asymmetry, our study provides nuanced insights on why lead lenders’ provision quality also affects syndicated loan structure. Our study also extends prior research by constructing an accounting-based bank-year level measure to capture screening and monitoring effectiveness that participants use to assess information asymmetry with lead lenders. Finally, our study provides another channel through which banks’ loan loss provisions play an important role in affecting capital provision to borrowers.
Reference


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FDIC. 2014. Interagency Policy Statements on the Allowance for Loan and Lease Losses


Morris, B. 2002. The Increasing Use of Turnaround Consultants As Advisors To Bank Groups.
http://www.morrisanderson.com/company-news/entry/the-increasing-use-of-turnaround-consultants-as-advisors-to-bank-groups/#sthash.1FMA514J.dpuf


### Appendix: Variable Definition

**Loan Attributes**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHARE_LEAD</td>
<td>Fraction of the loan facility retained by a lead lender.</td>
</tr>
<tr>
<td>FAMT</td>
<td>Facility amount scaled by borrower’s total assets.</td>
</tr>
<tr>
<td>MATURE</td>
<td>Natural log of number of months to loan maturity.</td>
</tr>
<tr>
<td>TERM</td>
<td>Indicator variable that equals 1 for a TERM loan.</td>
</tr>
<tr>
<td>SECURE</td>
<td>Indicator variable that equals 1 if the loan is collateralized.</td>
</tr>
<tr>
<td>NCOV</td>
<td>Number of financial covenants.</td>
</tr>
<tr>
<td>SPREAD</td>
<td>Loan spread above LIBOR.</td>
</tr>
<tr>
<td>NLENDER</td>
<td>Number of lenders in the syndication.</td>
</tr>
<tr>
<td>UPFRONT</td>
<td>Upfront fees allocated to the lead lender divided by the estimated total</td>
</tr>
<tr>
<td></td>
<td>borrowing costs (upfront fees + loan spread * years to maturity)</td>
</tr>
<tr>
<td>ABRET</td>
<td>Three-day value-weighted market-adjusted abnormal returns around the</td>
</tr>
<tr>
<td></td>
<td>loan announcement dates.</td>
</tr>
<tr>
<td>PRIOR_RET</td>
<td>Market-adjusted abnormal returns from 20 days to 2 days prior to the</td>
</tr>
<tr>
<td></td>
<td>loan announcements.</td>
</tr>
<tr>
<td>EA_D</td>
<td>Indicator variable equal to 1 if earnings announcement is also included in</td>
</tr>
<tr>
<td></td>
<td>the 8-K filing that contains the loan announcement, 0 otherwise.</td>
</tr>
<tr>
<td>EA_SURPRISE</td>
<td>Earnings surprise calculated as changes in seasonally adjusted quarterly</td>
</tr>
<tr>
<td></td>
<td>ROA when $EA_D$ is 1, 0 otherwise.</td>
</tr>
<tr>
<td>PART_LEAD</td>
<td>Indicator variable that equals 1 if the relationship between a lead lender</td>
</tr>
<tr>
<td></td>
<td>and the participant interacted with the lead arranger most frequently</td>
</tr>
<tr>
<td></td>
<td>within the syndication during the past year is above the sample median.</td>
</tr>
<tr>
<td></td>
<td>For each pair of lead lender and participant, we measure the lending</td>
</tr>
<tr>
<td></td>
<td>relation as the total number of unique loan packages involving both</td>
</tr>
<tr>
<td></td>
<td>parties that are originated during the past year scaled by total loan</td>
</tr>
<tr>
<td></td>
<td>packages involving only the lead lender.</td>
</tr>
<tr>
<td>BORROWER_PART</td>
<td>Indicator variable that equals 1 if at least one of the loan participants in</td>
</tr>
<tr>
<td></td>
<td>the current deal has participated loans with the same borrower during the</td>
</tr>
<tr>
<td></td>
<td>past three years.</td>
</tr>
</tbody>
</table>

**Borrower Attributes**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE_B</td>
<td>Natural log of borrower's total assets.</td>
</tr>
<tr>
<td>LEV_B</td>
<td>Total debt divided by total assets.</td>
</tr>
<tr>
<td>ROA_B</td>
<td>Earnings before extraordinary items divided by the beginning balance of</td>
</tr>
<tr>
<td></td>
<td>total assets.</td>
</tr>
<tr>
<td>MTB_B</td>
<td>Sum of market value of equity and book value of debt divided by total</td>
</tr>
<tr>
<td></td>
<td>assets.</td>
</tr>
<tr>
<td>RATED_B</td>
<td>Indicator variable that equals 1 if the borrower has issuer credit ratings.</td>
</tr>
<tr>
<td>DCV</td>
<td>Debt contracting value of borrowers’ accounting information,</td>
</tr>
<tr>
<td></td>
<td>constructed following Ball et al. (2008) for each 2-digit SIC code.</td>
</tr>
</tbody>
</table>
### Lead Lender Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C&amp;I_NCO</strong></td>
<td>Net annual charge offs for commercial and industrial loans.</td>
</tr>
<tr>
<td><strong>C&amp;I_PROV</strong></td>
<td>Annual loan loss provision for commercial and industrial (C&amp;I) loans.</td>
</tr>
<tr>
<td><strong>C&amp;I_NCO_PROV</strong></td>
<td>C&amp;I_NCO_{t+1}/C&amp;I_PROV_{t}, ratio of future net charge offs divided by current period provision for commercial and industrial (C&amp;I) loans calculated for each bank i year t.</td>
</tr>
<tr>
<td><strong>C&amp;I_VALID</strong></td>
<td>-1* average of ABS (C&amp;I_NCO_{t+1}/C&amp;I_PROV_{t} – 1) of the past three years including the current year.</td>
</tr>
<tr>
<td><strong>Non-C&amp;I_VALID</strong></td>
<td>-1* average of ABS (Other_NCO_{t+1}/Other_PROV_{t} - 1) of the past three years including the current year, where Other_NCO_{t+1} is net charge off for non-commercial loans for year t+1 and Other_Prov_{t} is the provision of non-commercial loans for year t.</td>
</tr>
<tr>
<td><strong>ASSG_L</strong></td>
<td>Changes in total assets scaled by beginning balance of total assets.</td>
</tr>
<tr>
<td><strong>SIZE_L</strong></td>
<td>Natural log of total assets.</td>
</tr>
<tr>
<td><strong>LEV_L</strong></td>
<td>Total liabilities divided by total assets.</td>
</tr>
<tr>
<td><strong>ROA_L</strong></td>
<td>Earnings before extraordinary items divided by beginning balance of total assets.</td>
</tr>
<tr>
<td><strong>C&amp;I_LOANS</strong></td>
<td>Total commercial and industrial loans scaled by total assets.</td>
</tr>
<tr>
<td><strong>C&amp;I_NONACC</strong></td>
<td>Percentage of commercial and industrial loans with nonaccrual status.</td>
</tr>
<tr>
<td><strong>C&amp;I_NCO_STD</strong></td>
<td>Standard deviation of net quarterly charge off rate for commercial and industrial loans over the past 3 years.</td>
</tr>
<tr>
<td><strong>MKT_SHARE</strong></td>
<td>Market share of the lead lender in syndicated loans market based on loan amount constructed following Sufi (2007) for each bank i year t.</td>
</tr>
<tr>
<td><strong>LARGE_BANKRUPTCY</strong></td>
<td>Indicator variable that equals 1 for bank i year t if a significant portion (10% based on loan origination) of its outstanding commercial loans are issued to borrowers that declared bankruptcy during that year, constructed following Gopalan et al. (2011).</td>
</tr>
<tr>
<td><strong>PAST_BORROWER_PCT</strong></td>
<td>Percentage of current year borrowers to which the bank lent within the last 3 years measured for each bank i year t.</td>
</tr>
<tr>
<td><strong>FUTURE_C&amp;I_REC_RATIO</strong></td>
<td>C&amp;I loan recoveries in year t+3 divided by gross C&amp;I loan charge-offs in year t+2, calculated for each bank i year t.</td>
</tr>
<tr>
<td><strong>PORT_SPREAD</strong></td>
<td>Natural log of the average loan spread of all syndicated loans held by the bank estimated for each bank i year t assuming banks carry loans until maturity or for 3 years whichever is shorter.</td>
</tr>
<tr>
<td><strong>PORT_ZRANK</strong></td>
<td>Average percentile rank of z-score of all existing borrowers estimated for each bank i year t assuming banks carry loans until maturity or for 3 years whichever is shorter. Higher z-score indicates lower bankruptcy risk.</td>
</tr>
<tr>
<td><strong>PORT_TANGIBLE</strong></td>
<td>Average borrower tangibility (tangible assets/total assets) estimated for each bank i year t assuming banks carry loans until maturity or for 3 years whichever is shorter.</td>
</tr>
</tbody>
</table>
Table 1: Descriptive statistics

Panel A: Descriptive statistics of main variables at the loan facility level

<table>
<thead>
<tr>
<th>Loan Attributes</th>
<th>N</th>
<th>MEAN</th>
<th>STD</th>
<th>P25</th>
<th>P50</th>
<th>P75</th>
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<tbody>
<tr>
<td>SHARE_LEAD</td>
<td>4513</td>
<td>0.198</td>
<td>0.153</td>
<td>0.095</td>
<td>0.143</td>
<td>0.250</td>
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<tr>
<td>FAMT</td>
<td>4654</td>
<td>0.191</td>
<td>0.202</td>
<td>0.062</td>
<td>0.124</td>
<td>0.245</td>
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<tr>
<td>MATURE</td>
<td>4654</td>
<td>3.548</td>
<td>0.685</td>
<td>3.045</td>
<td>3.850</td>
<td>4.094</td>
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<td>TERM</td>
<td>4654</td>
<td>0.142</td>
<td>0.349</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SECURE</td>
<td>4654</td>
<td>0.345</td>
<td>0.475</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td>NCOV</td>
<td>4654</td>
<td>1.698</td>
<td>1.164</td>
<td>1</td>
<td>2</td>
<td>2</td>
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<tr>
<td>SPREAD</td>
<td>4654</td>
<td>134.7</td>
<td>105.7</td>
<td>50.0</td>
<td>100.0</td>
<td>200.0</td>
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<td>NLENDER</td>
<td>4654</td>
<td>13.23</td>
<td>8.79</td>
<td>6</td>
<td>11</td>
<td>19</td>
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<tr>
<td>UPRFRONT</td>
<td>770</td>
<td>0.092</td>
<td>0.082</td>
<td>0.037</td>
<td>0.066</td>
<td>0.113</td>
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<td>ABRET</td>
<td>1103</td>
<td>0.002</td>
<td>0.038</td>
<td>-0.017</td>
<td>0.001</td>
<td>0.019</td>
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<tr>
<td>PART_LEAD</td>
<td>4654</td>
<td>0.500</td>
<td>0.500</td>
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<td>1</td>
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<tr>
<td>BORROWER_PART</td>
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<td>0.613</td>
<td>0.487</td>
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<tr>
<td>SIZE_L_B</td>
<td>4654</td>
<td>7.801</td>
<td>1.765</td>
<td>6.530</td>
<td>7.765</td>
<td>9.122</td>
</tr>
<tr>
<td>LEV_B</td>
<td>4654</td>
<td>0.291</td>
<td>0.169</td>
<td>0.177</td>
<td>0.282</td>
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<td>ROA_L_B</td>
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<td>0.043</td>
<td>0.064</td>
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<td>MTB_B</td>
<td>4654</td>
<td>1.702</td>
<td>0.853</td>
<td>1.162</td>
<td>1.439</td>
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<tr>
<td>RATED_B</td>
<td>4654</td>
<td>0.674</td>
<td>0.469</td>
<td>0</td>
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<td>1</td>
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<td>DCV</td>
<td>4654</td>
<td>0.374</td>
<td>0.114</td>
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</thead>
<tbody>
<tr>
<td>C&amp;I_NCO_PROV</td>
<td>4395</td>
<td>0.926</td>
<td>1.927</td>
<td>0.367</td>
<td>0.916</td>
<td>1.518</td>
</tr>
<tr>
<td>C&amp;I_VALID</td>
<td>4395</td>
<td>-0.936</td>
<td>1.344</td>
<td>-0.439</td>
<td>-0.664</td>
<td>-1.014</td>
</tr>
<tr>
<td>Non-C&amp;I_VALID</td>
<td>4395</td>
<td>-0.784</td>
<td>1.178</td>
<td>-0.266</td>
<td>-0.453</td>
<td>-0.858</td>
</tr>
<tr>
<td>ASSG_L_L</td>
<td>4463</td>
<td>0.132</td>
<td>0.177</td>
<td>0.017</td>
<td>0.094</td>
<td>0.165</td>
</tr>
<tr>
<td>SIZE_L_L</td>
<td>4463</td>
<td>20.35</td>
<td>0.952</td>
<td>19.99</td>
<td>20.46</td>
<td>21.024</td>
</tr>
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Panel B: Comparison of bank attributes between high and low C&I VALID subsamples at the bank-year level

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Note: ***, ** and * indicate significant at 1%, 5% and 10% Levels.
Table 2 Panel A: Correlations of main variables at the facility level (correlations in bold represent 1% significance)

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<tr>
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<td>0.04</td>
<td>0.02</td>
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<td>0.09</td>
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<td>-0.13</td>
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<td>-0.39</td>
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<td>-0.56</td>
<td>-0.01</td>
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</tr>
<tr>
<td>C&amp;I_NCO_STD</td>
<td>-0.17</td>
<td>0.02</td>
<td>0.09</td>
<td>0.05</td>
<td>-0.03</td>
<td>0.26</td>
<td>-0.02</td>
<td>-0.25</td>
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<td>-0.04</td>
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<td>0.02</td>
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<tr>
<td>PORT_TANGIBLE</td>
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<td>-0.02</td>
<td>-0.18</td>
<td>-0.33</td>
<td>-0.10</td>
<td>0.02</td>
<td>-0.30</td>
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<td>0.09</td>
<td>-0.05</td>
<td>-0.17</td>
<td>-0.01</td>
<td>0.07</td>
<td>-0.01</td>
<td>1.00</td>
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<tr>
<td>PORT_ZRANK</td>
<td>0.00</td>
<td>0.01</td>
<td>-0.15</td>
<td>-0.27</td>
<td>-0.05</td>
<td>-0.15</td>
<td>-0.09</td>
<td>0.12</td>
<td>0.02</td>
<td>-0.02</td>
<td>-0.07</td>
<td>-0.10</td>
<td>0.07</td>
<td>0.00</td>
<td>-0.26</td>
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</tr>
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</table>

Table 2 Panel B: Correlations of main variables at the bank-year level (correlations in **bold** represent 10% significance)
Table 3 Panel A: Coefficients (and clustered standard errors) of associations between past interactions of borrowers and lead lenders and provision valid measures

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>C&amp;I_VALID</th>
<th>Non-C&amp;I_VALID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td><strong>PAST_BORROWER_PCT</strong></td>
<td>4.3866**</td>
<td>1.5062</td>
</tr>
<tr>
<td></td>
<td>(1.8797)</td>
<td>(3.4384)</td>
</tr>
<tr>
<td><strong>SIZE_L</strong></td>
<td>2.8306*</td>
<td>3.2762</td>
</tr>
<tr>
<td></td>
<td>(1.5561)</td>
<td>(2.1007)</td>
</tr>
<tr>
<td><strong>LEV_L</strong></td>
<td>-3.6011</td>
<td>17.6513</td>
</tr>
<tr>
<td></td>
<td>(13.6560)</td>
<td>(34.4392)</td>
</tr>
<tr>
<td><strong>ROA_L</strong></td>
<td>-3.3611</td>
<td>-70.4396*</td>
</tr>
<tr>
<td></td>
<td>(26.0299)</td>
<td>(36.4369)</td>
</tr>
<tr>
<td><strong>ASSG_L</strong></td>
<td>0.3387</td>
<td>-1.5743**</td>
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<tr>
<td></td>
<td>(1.0800)</td>
<td>(0.7565)</td>
</tr>
<tr>
<td><strong>C&amp;I_LOANS</strong></td>
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<td>3.9081</td>
</tr>
<tr>
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<td>(8.3453)</td>
<td>(9.4386)</td>
</tr>
<tr>
<td><strong>C&amp;I_NONACC</strong></td>
<td>11.8191</td>
<td>1.3133</td>
</tr>
<tr>
<td></td>
<td>(20.7963)</td>
<td>(22.7710)</td>
</tr>
<tr>
<td><strong>C&amp;I_NCO_STD</strong></td>
<td>-33.7924</td>
<td>68.7713</td>
</tr>
<tr>
<td></td>
<td>(255.1140)</td>
<td>(212.2359)</td>
</tr>
<tr>
<td><strong>PORT_SPREAD</strong></td>
<td>-0.3936</td>
<td>-0.3786</td>
</tr>
<tr>
<td></td>
<td>(1.0468)</td>
<td>(1.0456)</td>
</tr>
<tr>
<td><strong>PORT_TANGIBLE</strong></td>
<td>-7.9160*</td>
<td>-8.8729</td>
</tr>
<tr>
<td></td>
<td>(4.4632)</td>
<td>(7.5396)</td>
</tr>
<tr>
<td><strong>PORT_ZRANK</strong></td>
<td>-0.0105</td>
<td>0.0459**</td>
</tr>
<tr>
<td></td>
<td>(0.0217)</td>
<td>(0.0220)</td>
</tr>
</tbody>
</table>

Observations: 213
R-squared: 0.4455

Notes: Dependent variables in Table 3 Panel A are C&I_VALID and Non-C&I_VALID measured for each bank-year in column (1) and (2), respectively. Both columns include bank and year fixed effects. ***, ** and * indicate that the coefficients are significant at 1%, 5% and 10% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the bank level.
Table 3 Panel B: Association between provision validity and two-year ahead loan loss recovery rate

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Coefficients</th>
<th>(clustered standard errors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I_VALID</td>
<td>0.0066**</td>
<td>(0.0028)</td>
</tr>
<tr>
<td>Non-C&amp;I_VALID</td>
<td>-0.0004</td>
<td>(0.0055)</td>
</tr>
<tr>
<td>MKT_SHARE</td>
<td>-0.0848</td>
<td>(0.3487)</td>
</tr>
<tr>
<td>SIZE_L</td>
<td>-0.1189</td>
<td>(0.1025)</td>
</tr>
<tr>
<td>LEV</td>
<td>-1.6418</td>
<td>(1.1471)</td>
</tr>
<tr>
<td>ROA_L</td>
<td>2.2609</td>
<td>(1.8535)</td>
</tr>
<tr>
<td>ASSG_L</td>
<td>-0.0416</td>
<td>(0.0686)</td>
</tr>
<tr>
<td>C&amp;I_LOANS</td>
<td>-0.8878</td>
<td>(0.6015)</td>
</tr>
<tr>
<td>C&amp;I_NONACC</td>
<td>2.4379</td>
<td>(1.7282)</td>
</tr>
<tr>
<td>C&amp;I_NCO_STD</td>
<td>-4.6805</td>
<td>(15.4067)</td>
</tr>
<tr>
<td>PORT_SPREAD</td>
<td>0.0827</td>
<td>(0.0677)</td>
</tr>
<tr>
<td>PORT_TANGIBLE</td>
<td>-0.2411</td>
<td>(0.1752)</td>
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<tr>
<td>PORT_ZRANK</td>
<td>-0.0003</td>
<td>(0.0014)</td>
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Observations: 183
R-squared: 0.6516

C&I_VALID = Non-C&I_VALID, Prob > F = 0.2295

Note: Dependent variable in Table 3 Panel B is FUTURE_C&I_REC_RATIO. Bank and year fixed effects are included. ***, ** and * indicate that the coefficients are significant at 1%, 5% and 10% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the package level.
Table 3 Panel C: Association between future large bankruptcy of lead lender’s borrowers and provision validity

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Coefficients</th>
<th>(clustered standard errors)</th>
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</thead>
<tbody>
<tr>
<td>C&amp;I_VALID</td>
<td>-0.1212***</td>
<td>(0.0316)</td>
</tr>
<tr>
<td>Non-C&amp;I_VALID</td>
<td>-0.0380</td>
<td>(0.0315)</td>
</tr>
<tr>
<td>MKT_SHARE</td>
<td>-21.0313***</td>
<td>(4.9584)</td>
</tr>
<tr>
<td>SIZE_L</td>
<td>0.8784***</td>
<td>(0.3239)</td>
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<tr>
<td>LEV_L</td>
<td>45.7629***</td>
<td>(11.0155)</td>
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<tr>
<td>ROA_L</td>
<td>-7.0065</td>
<td>(16.9180)</td>
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<tr>
<td>ASSG_L</td>
<td>0.1102</td>
<td>(1.1823)</td>
</tr>
<tr>
<td>C&amp;I_LOANS</td>
<td>7.0632**</td>
<td>(3.1871)</td>
</tr>
<tr>
<td>C&amp;I_NONACC</td>
<td>38.8749***</td>
<td>(12.3103)</td>
</tr>
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<td>C&amp;I_NCO_STD</td>
<td>-5.6461</td>
<td>(145.8288)</td>
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<tr>
<td>PORT_SPREAD</td>
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<tr>
<td>PORT_TANGIBLE</td>
<td>-6.1682**</td>
<td>(2.4657)</td>
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<td>PORT_ZRANK</td>
<td>-0.0136</td>
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<td>LARGE_BANKRUPTCY</td>
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<td>Constant</td>
<td>-49.8296***</td>
<td>(13.2384)</td>
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Observations: 217

Pseudo $R^2$: 0.4134

$C&I\_VALID = Non-C&I\_VALID \quad Prob > chi2 = 0.0849$

Note: The dependent variable of the PROBIT model in Table 3 Panel C is one year ahead LARGE_BANKRUPTCY. Following Gopalan et al. (2011), this is an indicator variable equals 1 for a bank year if a significant portion (10% based on loan origination) of its outstanding commercial loans are issued to borrowers that declared bankruptcy during that year. ***, ** and * indicate coefficients significant at 1%, 5% and 10% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the bank level.
Table 3 Panel D: Association between provision validity and equity market reactions to borrower loan announcements

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Coefficients</th>
<th>(clustered standard errors)</th>
<th>Coefficients</th>
<th>(clustered standard errors)</th>
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<tr>
<td>C&amp;I_VALID</td>
<td>0.0031*</td>
<td>(0.0016)</td>
<td>0.0035**</td>
<td>(0.0016)</td>
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<td>Non-C&amp;I_VALID</td>
<td>-0.0017</td>
<td>(0.0023)</td>
<td>-0.0019</td>
<td>(0.0022)</td>
</tr>
<tr>
<td>SIZE_L</td>
<td>0.0510***</td>
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<td>0.0523***</td>
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<tr>
<td>LEV_L</td>
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<tr>
<td>ROA_L</td>
<td>0.5519*</td>
<td>(0.2817)</td>
<td>0.5633**</td>
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<td>C&amp;I_LOANS</td>
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<td>(0.1468)</td>
<td>0.2855*</td>
<td>(0.1494)</td>
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<td>C&amp;I NONACC</td>
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<td>(0.8212)</td>
<td>-1.8690**</td>
<td>(0.8328)</td>
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<td>(4.8014)</td>
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<td>0.0723</td>
<td>(0.0482)</td>
<td>0.0893**</td>
<td>(0.0443)</td>
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<td>-0.0245</td>
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<td>PORT_TANGIBLE</td>
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<td>(0.1014)</td>
<td>-0.1872*</td>
<td>(0.0980)</td>
</tr>
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<td>-0.0002</td>
<td>(0.0009)</td>
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<td>0.0019</td>
<td>(0.0020)</td>
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<td>0.0100</td>
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<tr>
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<td>(0.0420)</td>
<td>-0.0808*</td>
<td>(0.0451)</td>
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<td>0.0032</td>
<td>(0.0024)</td>
</tr>
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<td>RATED_B</td>
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<td>(0.0124)</td>
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<tr>
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<td>(0.0022)</td>
<td>0.0023</td>
<td>(0.0023)</td>
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<td>(0.0036)</td>
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<td>0.0024</td>
<td>(0.0041)</td>
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<tr>
<td>NCOV</td>
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<td>(0.0022)</td>
<td>-0.0047**</td>
<td>(0.0024)</td>
</tr>
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<td>LOG_SPREAD</td>
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<td>(0.0031)</td>
<td>0.0036</td>
<td>(0.0034)</td>
</tr>
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<td>(0.0002)</td>
<td>-0.0002</td>
<td>(0.0002)</td>
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<td>PRIOR_RET</td>
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<td>(0.0238)</td>
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<td>EA_D</td>
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<td>EA_SURPRICE</td>
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</table>

Observations: 1068
R-squared: 0.2494
F-test: C&I_VALID = non-C&I VALID
Prob > F = 0.0976
Prob > F = 0.0564

Note: Dependent variable ABRET in Table 3 Panel D is the 3-day market-adjusted abnormal returns around loan announcement dates. Bank, year, and borrower industry fixed effects are included in all columns. 8-K item fixed effect is included in column (3) and (4). ***, ** and * indicate that the coefficients are significant at 1%, 5% and 10% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the package level. Column (3) and (4) reports results excluding loan announcements via 10-K or 10-Q filings.
Table 4: Coefficients (clustered standard errors) of regressions of lead lender share on provision validity

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I_VALID</td>
<td>-0.0035** (0.0015)</td>
<td>-0.0046*** (0.0015)</td>
<td>-0.0047*** (0.0016)</td>
</tr>
<tr>
<td>Non-C&amp;I_VALID</td>
<td>0.0017 (0.0017)</td>
<td>0.0021 (0.0023)</td>
<td>0.0014 (0.0025)</td>
</tr>
<tr>
<td>MKT_SHARE</td>
<td>-0.0414*** (0.0130)</td>
<td>-0.0587 (0.0547)</td>
<td>-0.0220 (0.0785)</td>
</tr>
<tr>
<td>FAMT</td>
<td>-0.0474*** (0.0143)</td>
<td>-0.0495*** (0.0142)</td>
<td>-0.0492*** (0.0143)</td>
</tr>
<tr>
<td>MATURE</td>
<td>-0.0168*** (0.0032)</td>
<td>-0.0163*** (0.0032)</td>
<td>-0.0164*** (0.0032)</td>
</tr>
<tr>
<td>TERM</td>
<td>0.0465*** (0.0065)</td>
<td>0.0470*** (0.0066)</td>
<td>0.0466*** (0.0066)</td>
</tr>
<tr>
<td>SECURE</td>
<td>0.0183*** (0.0059)</td>
<td>0.0171*** (0.0059)</td>
<td>0.0173*** (0.0059)</td>
</tr>
<tr>
<td>NCOV</td>
<td>0.0002 (0.0026)</td>
<td>0.0004 (0.0026)</td>
<td>0.0004 (0.0026)</td>
</tr>
<tr>
<td>LOG_SPREAD</td>
<td>0.0170*** (0.0044)</td>
<td>0.0171*** (0.0044)</td>
<td>0.0174*** (0.0044)</td>
</tr>
<tr>
<td>NLENDER</td>
<td>-0.0082*** (0.0004)</td>
<td>-0.0082*** (0.0004)</td>
<td>-0.0082*** (0.0004)</td>
</tr>
<tr>
<td>SIZE_B</td>
<td>-0.0151*** (0.0031)</td>
<td>-0.0130*** (0.0032)</td>
<td>-0.0129*** (0.0032)</td>
</tr>
<tr>
<td>LEV_B</td>
<td>-0.0133 (0.0164)</td>
<td>-0.0063 (0.0164)</td>
<td>-0.0074 (0.0164)</td>
</tr>
<tr>
<td>ROA_B</td>
<td>-0.0008 (0.0429)</td>
<td>0.0066 (0.0424)</td>
<td>0.0024 (0.0423)</td>
</tr>
<tr>
<td>MTB_B</td>
<td>-0.0028 (0.0030)</td>
<td>-0.0025 (0.0031)</td>
<td>-0.0026 (0.0030)</td>
</tr>
<tr>
<td>RATED_B</td>
<td>-0.0204*** (0.0061)</td>
<td>-0.0196*** (0.0061)</td>
<td>-0.0193*** (0.0061)</td>
</tr>
<tr>
<td>SIZE_L</td>
<td>0.0072 (0.0169)</td>
<td>0.2795 (0.2359)</td>
<td>0.2163 (0.3888)</td>
</tr>
<tr>
<td>LEV_L</td>
<td>0.2163 (0.3888)</td>
<td>0.0352** (0.0172)</td>
<td>0.0172 (0.3253)</td>
</tr>
<tr>
<td>ROA_L</td>
<td>0.2163 (0.3888)</td>
<td>0.0352** (0.0172)</td>
<td>0.0172 (0.3253)</td>
</tr>
<tr>
<td>ASSG_L</td>
<td>-0.0102 (0.3253)</td>
<td>-0.4906 (5.2458)</td>
<td>-0.4906 (5.2458)</td>
</tr>
<tr>
<td>C&amp;I_NONACC</td>
<td>0.2266* (0.1319)</td>
<td>-0.4906 (5.2458)</td>
<td>-0.4906 (5.2458)</td>
</tr>
<tr>
<td>C&amp;I_LOANS</td>
<td>0.2266* (0.1319)</td>
<td>0.0145 (0.0231)</td>
<td>0.0145 (0.0231)</td>
</tr>
<tr>
<td>C&amp;I_NCO_STD</td>
<td>-0.4906 (5.2458)</td>
<td>0.0533 (0.1123)</td>
<td>0.0533 (0.1123)</td>
</tr>
<tr>
<td>PORT_SPREAD</td>
<td>0.0004 (0.0010)</td>
<td>-0.0242 (0.0370)</td>
<td>-0.0242 (0.0370)</td>
</tr>
<tr>
<td>PORT_TANGIBLE</td>
<td>0.0533 (0.1123)</td>
<td>0.0533 (0.1123)</td>
<td>0.0533 (0.1123)</td>
</tr>
<tr>
<td>PORT_ZRANK</td>
<td>-0.0242 (0.0370)</td>
<td>-0.0242 (0.0370)</td>
<td>-0.0242 (0.0370)</td>
</tr>
<tr>
<td>PAST_BORROWER_PCT</td>
<td>-0.0242 (0.0370)</td>
<td>-0.0242 (0.0370)</td>
<td>-0.0242 (0.0370)</td>
</tr>
<tr>
<td>Bank fixed effect</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>4,395</td>
<td>4,395</td>
<td>4,395</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.5662</td>
<td>0.5804</td>
<td>0.5818</td>
</tr>
<tr>
<td>C&amp;I_VALID = non-C&amp;I_VALID</td>
<td>Prob &gt; F = 0.0163</td>
<td>Prob &gt; F = 0.0125</td>
<td>Prob &gt; F = 0.0413</td>
</tr>
</tbody>
</table>
Note: Dependent variable in Table 4 is \textit{SHARE\_LEAD} in all columns. All models include year and borrower industry fixed effects. ***, ** and * indicate coefficients significant at 1\%, 5\% and 10\% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the package level.
Table 5: Coefficients (clustered standard errors) of the regression of lead lender share on provision validity by alternative information sources

<table>
<thead>
<tr>
<th>C&amp;I_VALID</th>
<th>NoRate LN</th>
<th>Rate LN</th>
<th>NoRate F</th>
<th>Rate F</th>
<th>Low DCV</th>
<th>High DCV</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.0119** (0.0046)</td>
<td>-0.0029+ (0.0026)</td>
<td>-0.0087** (0.0034)</td>
<td>-0.0011++ (0.0013)</td>
<td>-0.0061*** (0.0020)</td>
<td>-0.0026</td>
<td></td>
</tr>
<tr>
<td>Non-C&amp;I_VALID</td>
<td>0.0053 (0.0041)</td>
<td>0.0006 (0.0028)</td>
<td>0.0006 (0.0038)</td>
<td>-0.0007 (0.0024)</td>
<td>0.0015 (0.0032)</td>
<td>0.0012</td>
</tr>
<tr>
<td>MKT_SHARE</td>
<td>0.0015 (0.2512)</td>
<td>-0.0733 (0.1146)</td>
<td>-0.0146 (0.1774)</td>
<td>-0.0711 (0.1794)</td>
<td>0.0984 (0.0851)</td>
<td>-0.0592</td>
</tr>
<tr>
<td>FAMT</td>
<td>0.0076*** (0.0240)</td>
<td>-0.0069 (0.0196)</td>
<td>-0.0768*** (0.0209)</td>
<td>-0.0142 (0.0181)</td>
<td>-0.0330 (0.0230)</td>
<td>-0.0575*** (0.0218)</td>
</tr>
<tr>
<td>MATURE</td>
<td>-0.0252** (0.0100)</td>
<td>-0.0121*** (0.0031)</td>
<td>-0.0247*** (0.0087)</td>
<td>-0.0120*** (0.0032)</td>
<td>-0.0097*** (0.0046)</td>
<td>-0.0301*** (0.0050)</td>
</tr>
<tr>
<td>TERM</td>
<td>0.0097 (0.0107)</td>
<td>0.0677*** (0.0092)</td>
<td>0.0237** (0.0104)</td>
<td>0.0586*** (0.0086)</td>
<td>0.0549*** (0.0100)</td>
<td>0.0431*** (0.0091)</td>
</tr>
<tr>
<td>SECURE</td>
<td>0.0066 (0.0125)</td>
<td>0.0262*** (0.0069)</td>
<td>0.0027 (0.0118)</td>
<td>0.0247*** (0.0063)</td>
<td>0.0351*** (0.0093)</td>
<td>0.0209*** (0.0078)</td>
</tr>
<tr>
<td>NCOV</td>
<td>0.0008 (0.0052)</td>
<td>0.0026 (0.0031)</td>
<td>0.0003 (0.0048)</td>
<td>-0.0001 (0.0030)</td>
<td>0.0007 (0.0035)</td>
<td>0.0007</td>
</tr>
<tr>
<td>LOG_SPREAD</td>
<td>0.0089 (0.0121)</td>
<td>0.0171*** (0.0051)</td>
<td>0.0233* (0.0124)</td>
<td>0.0136*** (0.0046)</td>
<td>0.0156*** (0.0059)</td>
<td>0.0062</td>
</tr>
<tr>
<td>NLENDER</td>
<td>-0.0124*** (0.0021)</td>
<td>-0.0079*** (0.0005)</td>
<td>-0.0136*** (0.0017)</td>
<td>-0.0075*** (0.0005)</td>
<td>-0.0073*** (0.0005)</td>
<td>-0.0099*** (0.0006)</td>
</tr>
<tr>
<td>SIZE_B</td>
<td>-0.0361*** (0.0086)</td>
<td>0.0036 (0.0036)</td>
<td>-0.0274*** (0.0076)</td>
<td>0.0001 (0.0034)</td>
<td>-0.0112*** (0.0035)</td>
<td>-0.0124** (0.0050)</td>
</tr>
<tr>
<td>LEV_B</td>
<td>-0.0167 (0.0400)</td>
<td>0.0290 (0.0190)</td>
<td>-0.0117 (0.0340)</td>
<td>0.0357** (0.0170)</td>
<td>-0.0373* (0.0212)</td>
<td>-0.0199</td>
</tr>
<tr>
<td>ROA_B</td>
<td>-0.0689 (0.0830)</td>
<td>0.0867 (0.0590)</td>
<td>0.0932 (0.0793)</td>
<td>0.0096 (0.0471)</td>
<td>-0.0745 (0.0595)</td>
<td>-0.0526</td>
</tr>
<tr>
<td>MTB_B</td>
<td>-0.0020 (0.0060)</td>
<td>-0.0023 (0.0036)</td>
<td>-0.0035 (0.0061)</td>
<td>-0.0023 (0.0032)</td>
<td>-0.0005 (0.0037)</td>
<td>-0.0071*</td>
</tr>
<tr>
<td>RATED_B</td>
<td>-0.0018 (0.0384)</td>
<td>0.0007 (0.0209)</td>
<td>-0.0010 (0.0280)</td>
<td>0.0290 (0.0180)</td>
<td>0.0498* (0.0298)</td>
<td>-0.0087</td>
</tr>
<tr>
<td>SIZE_L</td>
<td>-0.6266 (0.5757)</td>
<td>0.4066 (0.3026)</td>
<td>0.2346 (0.4898)</td>
<td>0.3013 (0.2442)</td>
<td>0.2520 (0.3339)</td>
<td>0.4171</td>
</tr>
<tr>
<td>LEV_L</td>
<td>0.3867 (1.0500)</td>
<td>-0.1992 (0.4183)</td>
<td>0.9036 (0.8435)</td>
<td>-0.1334 (0.3852)</td>
<td>0.0003 (0.5825)</td>
<td>0.7258</td>
</tr>
<tr>
<td>ROA_L</td>
<td>0.0758** (0.0373)</td>
<td>0.0346** (0.0164)</td>
<td>0.0302 (0.0337)</td>
<td>0.0190 (0.0147)</td>
<td>0.0604** (0.0268)</td>
<td>0.0135</td>
</tr>
<tr>
<td>ASSG_L</td>
<td>0.2633 (0.2972)</td>
<td>0.1692 (0.1316)</td>
<td>0.3273 (0.2474)</td>
<td>0.0803 (0.1355)</td>
<td>0.2151 (0.2127)</td>
<td>0.3317</td>
</tr>
<tr>
<td>C&amp;I_LOANS</td>
<td>-0.0015 (1.0283)</td>
<td>-0.4694 (0.3484)</td>
<td>-0.4232 (0.8356)</td>
<td>-0.0070 (0.2927)</td>
<td>0.1561 (0.4563)</td>
<td>0.3879</td>
</tr>
<tr>
<td>C&amp;I_NONACC</td>
<td>0.0000 (9.5326)</td>
<td>14.0061** (6.7115)</td>
<td>4.8319 (7.9463)</td>
<td>1.0083 (5.1629)</td>
<td>0.6007 (7.1082)</td>
<td>1.5489</td>
</tr>
<tr>
<td>PORT_SPREAD</td>
<td>-0.0551 (0.0537)</td>
<td>0.0383 (0.0236)</td>
<td>-0.0448 (0.0475)</td>
<td>0.0147 (0.0226)</td>
<td>0.0193 (0.0350)</td>
<td>0.0487</td>
</tr>
<tr>
<td>PORT_TANGIBLE</td>
<td>0.1527 (0.2243)</td>
<td>0.0134 (0.1202)</td>
<td>0.1939 (0.1920)</td>
<td>0.0376 (0.1127)</td>
<td>0.0847 (0.1491)</td>
<td>-0.0497</td>
</tr>
<tr>
<td>PORT_ZRANK</td>
<td>-0.0003 (0.0017)</td>
<td>-0.0000 (0.0012)</td>
<td>0.0016 (0.0016)</td>
<td>-0.0004 (0.0011)</td>
<td>0.0011 (0.0014)</td>
<td>-0.0022</td>
</tr>
<tr>
<td>PAST_BORROWER_PC</td>
<td>-0.0016 (0.0732)</td>
<td>-0.0115 (0.0388)</td>
<td>-0.0056 (0.0685)</td>
<td>-0.0434 (0.0396)</td>
<td>0.0037 (0.0532)</td>
<td>-0.1389** (0.0632)</td>
</tr>
</tbody>
</table>

Observations 1,219 2,786 1,401 2,994 1,401 2,994
R-squared 0.6626 0.5480 0.6376 0.5487 0.5128 0.5467
C&I_VALID = non-C&I_VALID Prob > F = Prob > F = Prob > F = 0.0065 0.3252 0.0795 0.8770 0.0440 0.3923
Note: Dependent variable in Table 5 is SHARE_LEAD in all columns. All models include bank, year, and borrower industry fixed effects. ***, ** and * indicate that the coefficients are significant at 1%, 5% and 10% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the package level. +++, ++ and + represent the coefficients on C&I_VALID across the partition are significantly different at 1%, 5% and 10% levels, respectively.
Table 6 Coefficients (clustered standard errors) of the regression of lead lender share on provision validity by lending relationships

<table>
<thead>
<tr>
<th></th>
<th>Part lead=0</th>
<th>Part lead=1</th>
<th>Borrow Part=0</th>
<th>Borrow Part=1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C&amp;I_VALID</strong></td>
<td>-0.0080**</td>
<td>-0.0003**</td>
<td>-0.0084***</td>
<td>-0.0008++</td>
</tr>
<tr>
<td></td>
<td>(0.0035)</td>
<td>(0.0016)</td>
<td>(0.0029)</td>
<td>(0.0016)</td>
</tr>
<tr>
<td><strong>Non-C&amp;I_VALID</strong></td>
<td>0.0054</td>
<td>-0.0003</td>
<td>0.0042</td>
<td>-0.0021</td>
</tr>
<tr>
<td></td>
<td>(0.0038)</td>
<td>(0.0033)</td>
<td>(0.0045)</td>
<td>(0.0036)</td>
</tr>
<tr>
<td><strong>MKT_SHARE</strong></td>
<td>0.0964</td>
<td>-0.0055</td>
<td>0.0477</td>
<td>0.0278</td>
</tr>
<tr>
<td></td>
<td>(0.1456)</td>
<td>(0.0853)</td>
<td>(0.1384)</td>
<td>(0.0899)</td>
</tr>
<tr>
<td><strong>FAMT</strong></td>
<td>-0.0523***</td>
<td>-0.0220</td>
<td>-0.0495***</td>
<td>-0.0288</td>
</tr>
<tr>
<td></td>
<td>(0.0186)</td>
<td>(0.0220)</td>
<td>(0.0217)</td>
<td>(0.0180)</td>
</tr>
<tr>
<td><strong>MATURE</strong></td>
<td>-0.0250***</td>
<td>-0.0065*</td>
<td>-0.0206***</td>
<td>-0.0095***</td>
</tr>
<tr>
<td></td>
<td>(0.0051)</td>
<td>(0.0034)</td>
<td>(0.0062)</td>
<td>(0.0035)</td>
</tr>
<tr>
<td><strong>TERM</strong></td>
<td>0.0389***</td>
<td>0.0554***</td>
<td>0.0373***</td>
<td>0.0592***</td>
</tr>
<tr>
<td></td>
<td>(0.0082)</td>
<td>(0.0106)</td>
<td>(0.0096)</td>
<td>(0.0089)</td>
</tr>
<tr>
<td><strong>SECURE</strong></td>
<td>0.0044</td>
<td>0.0186***</td>
<td>0.0240**</td>
<td>0.0127*</td>
</tr>
<tr>
<td></td>
<td>(0.0090)</td>
<td>(0.0065)</td>
<td>(0.0097)</td>
<td>(0.0068)</td>
</tr>
<tr>
<td><strong>NCOV</strong></td>
<td>0.0021</td>
<td>0.0051*</td>
<td>-0.0051</td>
<td>0.0027</td>
</tr>
<tr>
<td></td>
<td>(0.0038)</td>
<td>(0.0027)</td>
<td>(0.0044)</td>
<td>(0.0029)</td>
</tr>
<tr>
<td><strong>LOG_SPREAD</strong></td>
<td>0.0210***</td>
<td>0.0043</td>
<td>0.0198**</td>
<td>0.0143***</td>
</tr>
<tr>
<td></td>
<td>(0.0073)</td>
<td>(0.0044)</td>
<td>(0.0078)</td>
<td>(0.0051)</td>
</tr>
<tr>
<td><strong>NLENDER</strong></td>
<td>-0.0091***</td>
<td>-0.0068***</td>
<td>-0.0098***</td>
<td>-0.0073***</td>
</tr>
<tr>
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<td>(0.0007)</td>
<td>(0.0006)</td>
<td>(0.0009)</td>
<td>(0.0005)</td>
</tr>
<tr>
<td><strong>SIZE_B</strong></td>
<td>-0.0219***</td>
<td>0.0050</td>
<td>-0.0234***</td>
<td>-0.0016</td>
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<td>(0.0049)</td>
<td>(0.0039)</td>
</tr>
<tr>
<td><strong>LEV_B</strong></td>
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<tr>
<td></td>
<td>(0.0249)</td>
<td>(0.0163)</td>
<td>(0.0282)</td>
<td>(0.0185)</td>
</tr>
<tr>
<td><strong>ROA_B</strong></td>
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<td>-0.0031</td>
<td>0.0301</td>
</tr>
<tr>
<td></td>
<td>(0.0574)</td>
<td>(0.0473)</td>
<td>(0.0635)</td>
<td>(0.0537)</td>
</tr>
<tr>
<td><strong>MTB_B</strong></td>
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<td>0.0032</td>
<td>-0.0020</td>
<td>-0.0033</td>
</tr>
<tr>
<td></td>
<td>(0.0046)</td>
<td>(0.0033)</td>
<td>(0.0049)</td>
<td>(0.0035)</td>
</tr>
<tr>
<td><strong>RATED_B</strong></td>
<td>-0.0131</td>
<td>-0.0236***</td>
<td>-0.0155</td>
<td>-0.0160**</td>
</tr>
<tr>
<td></td>
<td>(0.0090)</td>
<td>(0.0068)</td>
<td>(0.0105)</td>
<td>(0.0072)</td>
</tr>
<tr>
<td><strong>SIZE_L</strong></td>
<td>0.0296</td>
<td>-0.0095</td>
<td>-0.0089</td>
<td>0.0304</td>
</tr>
<tr>
<td></td>
<td>(0.0300)</td>
<td>(0.0155)</td>
<td>(0.0293)</td>
<td>(0.0210)</td>
</tr>
<tr>
<td><strong>LEV</strong></td>
<td>-0.0397</td>
<td>0.3374</td>
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<td>0.2550</td>
</tr>
<tr>
<td></td>
<td>(0.4284)</td>
<td>(0.2476)</td>
<td>(0.4232)</td>
<td>(0.2764)</td>
</tr>
<tr>
<td><strong>ROA_L</strong></td>
<td>0.7763</td>
<td>0.5130</td>
<td>0.3978</td>
<td>0.3676</td>
</tr>
<tr>
<td></td>
<td>(0.7108)</td>
<td>(0.3901)</td>
<td>(0.7080)</td>
<td>(0.4023)</td>
</tr>
<tr>
<td><strong>ASSG_L</strong></td>
<td>0.0355</td>
<td>0.0364**</td>
<td>0.0567*</td>
<td>0.0096</td>
</tr>
<tr>
<td></td>
<td>(0.0310)</td>
<td>(0.0182)</td>
<td>(0.0331)</td>
<td>(0.0161)</td>
</tr>
<tr>
<td><strong>C&amp;I_LOANS</strong></td>
<td>0.4108*</td>
<td>0.1911</td>
<td>0.1545</td>
<td>0.0845</td>
</tr>
<tr>
<td></td>
<td>(0.2390)</td>
<td>(0.1379)</td>
<td>(0.2386)</td>
<td>(0.1525)</td>
</tr>
<tr>
<td><strong>C&amp;I_NONACC</strong></td>
<td>0.3200</td>
<td>0.0693</td>
<td>0.4674</td>
<td>-0.3707</td>
</tr>
<tr>
<td></td>
<td>(0.6302)</td>
<td>(0.3705)</td>
<td>(0.6044)</td>
<td>(0.3489)</td>
</tr>
<tr>
<td><strong>C&amp;I_NCO_STD</strong></td>
<td>13.7339</td>
<td>-7.3993</td>
<td>4.5861</td>
<td>-4.6993</td>
</tr>
<tr>
<td></td>
<td>(8.3507)</td>
<td>(5.9361)</td>
<td>(7.9101)</td>
<td>(6.5378)</td>
</tr>
<tr>
<td><strong>PORT_SPREAD</strong></td>
<td>-0.0172</td>
<td>0.0320</td>
<td>-0.0463</td>
<td>0.0078</td>
</tr>
<tr>
<td></td>
<td>(0.0431)</td>
<td>(0.0248)</td>
<td>(0.0400)</td>
<td>(0.0243)</td>
</tr>
<tr>
<td><strong>PORT_TANGIBLE</strong></td>
<td>-0.0608</td>
<td>-0.0681</td>
<td>0.0598</td>
<td>0.0459</td>
</tr>
<tr>
<td></td>
<td>(0.2384)</td>
<td>(0.1045)</td>
<td>(0.1893)</td>
<td>(0.1243)</td>
</tr>
<tr>
<td><strong>PORT_ZRANK</strong></td>
<td>-0.0007</td>
<td>0.0009</td>
<td>0.0004</td>
<td>-0.0007</td>
</tr>
<tr>
<td></td>
<td>(0.0016)</td>
<td>(0.0010)</td>
<td>(0.0015)</td>
<td>(0.0012)</td>
</tr>
<tr>
<td><strong>PAST_BORROWER_PCT</strong></td>
<td>-0.0470</td>
<td>-0.0243</td>
<td>0.0131</td>
<td>0.0324</td>
</tr>
<tr>
<td></td>
<td>(0.0704)</td>
<td>(0.0375)</td>
<td>(0.0680)</td>
<td>(0.0367)</td>
</tr>
<tr>
<td>Observations</td>
<td>2,205</td>
<td>2,190</td>
<td>1.678</td>
<td>2,717</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.6303</td>
<td>0.5521</td>
<td>0.6722</td>
<td>0.5493</td>
</tr>
</tbody>
</table>

**C&I VALID = Non-C&I VALID**

<table>
<thead>
<tr>
<th></th>
<th>Prob &gt; F</th>
<th>Prob &gt; F</th>
<th>Prob &gt; F</th>
<th>Prob &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0146</td>
<td>0.9925</td>
<td>0.0231</td>
<td>0.7456</td>
</tr>
</tbody>
</table>
Note: Dependent variable in Table 6 is \textit{SHARE LEAD} in all columns. All models include bank, year, and borrower industry fixed effects. ***, ** and * indicate that the coefficients are significant at 1\%, 5\% and 10\% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the package level. +++, ++ and + represent the coefficients on \textit{C\&I VALID} across the partition are significantly different at 1\%, 5\% and 10\% levels, respectively.
<table>
<thead>
<tr>
<th></th>
<th>No M&amp;A</th>
<th>M&amp;A</th>
<th>Non recession</th>
<th>Recession</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C&amp;I VALID</strong></td>
<td>-0.0032** (0.0015)</td>
<td>0.0182 (0.0807)</td>
<td>-0.0047** (0.0020)</td>
<td>0.0074 (0.0178)</td>
</tr>
<tr>
<td><strong>Non-C&amp;I VALID</strong></td>
<td>0.0033 (0.0023)</td>
<td>0.0058 (0.0119)</td>
<td>-0.0002 (0.0027)</td>
<td>-0.0205 (0.0184)</td>
</tr>
<tr>
<td><strong>MKT SHARE</strong></td>
<td>0.0317 (0.0262)</td>
<td>0.3241*** (0.0894)</td>
<td>0.0880 (0.0906)</td>
<td>-0.1809** (0.0782)</td>
</tr>
<tr>
<td><strong>FAMT</strong></td>
<td>-0.0419*** (0.0157)</td>
<td>-0.0562* (0.0303)</td>
<td>-0.0432*** (0.0164)</td>
<td>-0.0871** (0.0402)</td>
</tr>
<tr>
<td><strong>MATURE</strong></td>
<td>-0.0159*** (0.0035)</td>
<td>-0.0254*** (0.0072)</td>
<td>-0.0176*** (0.0037)</td>
<td>-0.0157** (0.0063)</td>
</tr>
<tr>
<td><strong>TERM</strong></td>
<td>0.0453*** (0.0072)</td>
<td>0.057*** (0.0154)</td>
<td>0.0471*** (0.0074)</td>
<td>0.0413*** (0.0157)</td>
</tr>
<tr>
<td><strong>SECURE</strong></td>
<td>0.0121* (0.0066)</td>
<td>0.0473*** (0.0121)</td>
<td>0.0125* (0.0068)</td>
<td>0.0367** (0.0149)</td>
</tr>
<tr>
<td><strong>NCOV</strong></td>
<td>-0.0002 (0.0029)</td>
<td>0.0091* (0.0052)</td>
<td>0.0003 (0.0030)</td>
<td>0.0073 (0.0060)</td>
</tr>
<tr>
<td><strong>LOG SPREAD</strong></td>
<td>0.0198*** (0.0051)</td>
<td>-0.0016 (0.0071)</td>
<td>0.0215*** (0.0054)</td>
<td>-0.0018 (0.0097)</td>
</tr>
<tr>
<td><strong>NLENDER</strong></td>
<td>-0.0089*** (0.0005)</td>
<td>-0.0061*** (0.0007)</td>
<td>-0.0084*** (0.0005)</td>
<td>-0.0066*** (0.0012)</td>
</tr>
<tr>
<td><strong>SIZE B</strong></td>
<td>-0.0123*** (0.0036)</td>
<td>-0.0068 (0.0051)</td>
<td>-0.0113*** (0.0037)</td>
<td>-0.0216*** (0.0077)</td>
</tr>
<tr>
<td><strong>LEV B</strong></td>
<td>-0.0127 (0.0181)</td>
<td>-0.0132 (0.0341)</td>
<td>-0.0096 (0.0191)</td>
<td>-0.0463 (0.0395)</td>
</tr>
<tr>
<td><strong>ROA B</strong></td>
<td>-0.0143 (0.0463)</td>
<td>-0.0141 (0.0946)</td>
<td>-0.0504 (0.0531)</td>
<td>0.0183 (0.0845)</td>
</tr>
<tr>
<td><strong>MTB B</strong></td>
<td>-0.0023 (0.0033)</td>
<td>0.0028 (0.0063)</td>
<td>0.0019 (0.0038)</td>
<td>-0.0116* (0.0062)</td>
</tr>
<tr>
<td><strong>RATED B</strong></td>
<td>-0.0216*** (0.0070)</td>
<td>-0.0141 (0.0121)</td>
<td>-0.0189*** (0.0068)</td>
<td>-0.0300* (0.0154)</td>
</tr>
<tr>
<td><strong>SIZE L</strong></td>
<td>0.0003 (0.0054)</td>
<td>-0.0813** (0.0366)</td>
<td>0.0391 (0.0263)</td>
<td>0.1633** (0.0661)</td>
</tr>
<tr>
<td><strong>LEV</strong></td>
<td>0.5939** (0.2561)</td>
<td>-1.4519 (2.6794)</td>
<td>0.4089 (2.643)</td>
<td>1.1583 (3.8570)</td>
</tr>
<tr>
<td><strong>ROA L</strong></td>
<td>0.4884 (0.4005)</td>
<td>4.1393 (3.8132)</td>
<td>0.8829** (0.4428)</td>
<td>0.6645 (1.9699)</td>
</tr>
<tr>
<td><strong>ASSG L</strong></td>
<td>0.0608 (0.0447)</td>
<td>0.1427* (0.0782)</td>
<td>0.0440* (0.0256)</td>
<td>-0.0721 (0.0670)</td>
</tr>
<tr>
<td><strong>C&amp;I LOANS</strong></td>
<td>0.2452** (0.1046)</td>
<td>0.4589 (0.7718)</td>
<td>0.3785** (0.1842)</td>
<td>-1.6157 (1.1880)</td>
</tr>
<tr>
<td><strong>C&amp;I NONACC</strong></td>
<td>-0.1787 (0.3044)</td>
<td>-0.1500 (6.6413)</td>
<td>0.4000 (4.863)</td>
<td>-1.2103 (2.7432)</td>
</tr>
<tr>
<td><strong>C&amp;I NCO STD</strong></td>
<td>6.7405 (4.6073)</td>
<td>15.4578 (30.2798)</td>
<td>7.5853 (5.6072)</td>
<td>-31.5094** (15.0176)</td>
</tr>
<tr>
<td><strong>PORT SPREAD</strong></td>
<td>0.0076 (0.0175)</td>
<td>-0.2086 (0.1463)</td>
<td>0.0184 (0.0314)</td>
<td>-0.0144 (0.1125)</td>
</tr>
<tr>
<td><strong>PORT TANGIBLE</strong></td>
<td>0.0574 (0.0911)</td>
<td>1.2113 (0.8641)</td>
<td>0.0225 (0.1272)</td>
<td>0.2284 (0.6619)</td>
</tr>
<tr>
<td><strong>PORT ZRANK</strong></td>
<td>-0.0002 (0.0008)</td>
<td>-0.0084 (0.0069)</td>
<td>0.0002 (0.0011)</td>
<td>0.0064 (0.0062)</td>
</tr>
<tr>
<td><strong>Past Borrower Pct</strong></td>
<td>-0.0807** (0.0334)</td>
<td>-0.2587** (0.1228)</td>
<td>-0.0640 (0.0468)</td>
<td>-0.0212 (0.0797)</td>
</tr>
<tr>
<td>Observations</td>
<td>3,514</td>
<td>881</td>
<td>3,555</td>
<td>840</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.5936</td>
<td>0.4659</td>
<td>0.5883</td>
<td>0.6510</td>
</tr>
</tbody>
</table>

**C&I VALID = Non-C&I VALID**

|                  | Prob > F = 0.0190         | Prob > F = 0.8692       | Prob > F = 0.1260 | Prob > F = 0.2442 |

59
Note: Dependent variable in Table 7 is SHARE_LEAD in all columns. Column (3) and (4) include bank, year, and borrower industry fixed effects. Column (1) and (2) exclude bank fixed effect due to limited within bank variation for the M&A subsample. ***, ** and * indicate that the coefficients are significant at 1%, 5% and 10% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the package level. +++, ++ and + represent the coefficients on C&I_VALID across the partition are significantly different at 1%, 5% and 10% levels, respectively.
Table 8 Coefficients (*clustered standard errors*) of the regression of up-front fee ratio on provision validity

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
<th>(Clustered standard errors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;I_VALID</td>
<td>0.0053***</td>
<td>(0.0018)</td>
</tr>
<tr>
<td>Non-C&amp;I_VALID</td>
<td>-0.0024</td>
<td>(0.0033)</td>
</tr>
<tr>
<td>FAMT</td>
<td>-0.0156</td>
<td>(0.0204)</td>
</tr>
<tr>
<td>TERM</td>
<td>-0.0167**</td>
<td>(0.0083)</td>
</tr>
<tr>
<td>SECURE</td>
<td>-0.0059</td>
<td>(0.0087)</td>
</tr>
<tr>
<td>NCOV</td>
<td>-0.0122***</td>
<td>(0.0037)</td>
</tr>
<tr>
<td>NLENDER</td>
<td>0.0005</td>
<td>(0.0007)</td>
</tr>
<tr>
<td>SIZE_B</td>
<td>0.0063</td>
<td>(0.0055)</td>
</tr>
<tr>
<td>LEV B</td>
<td>0.0003</td>
<td>(0.0262)</td>
</tr>
<tr>
<td>ROA_B</td>
<td>0.0292</td>
<td>(0.069)</td>
</tr>
<tr>
<td>MTB_B</td>
<td>0.0042</td>
<td>(0.0053)</td>
</tr>
<tr>
<td>RATED_B</td>
<td>-0.0068</td>
<td>(0.0092)</td>
</tr>
<tr>
<td>C&amp;I_LOANS</td>
<td>-0.0651</td>
<td>(0.1812)</td>
</tr>
<tr>
<td>C&amp;I_NONACC</td>
<td>0.6809</td>
<td>(0.5007)</td>
</tr>
<tr>
<td>C&amp;I_NCO_STD</td>
<td>-14.855**</td>
<td>(6.8933)</td>
</tr>
<tr>
<td>ASSG_L</td>
<td>-0.0299</td>
<td>(0.0298)</td>
</tr>
<tr>
<td>SIZE_L</td>
<td>-0.0084</td>
<td>(0.0203)</td>
</tr>
<tr>
<td>LEV_L</td>
<td>0.0641</td>
<td>(0.3308)</td>
</tr>
<tr>
<td>ROA_L</td>
<td>0.7195</td>
<td>(0.5350)</td>
</tr>
<tr>
<td>PORT_SPREAD</td>
<td>0.0611*</td>
<td>(0.0340)</td>
</tr>
<tr>
<td>PORT_TANGIBLE</td>
<td>0.1613</td>
<td>(0.1780)</td>
</tr>
<tr>
<td>PORT_ZRANK</td>
<td>-0.0011</td>
<td>(0.0014)</td>
</tr>
<tr>
<td>PAST_BORROWER_PCT</td>
<td>0.0443</td>
<td>(0.0468)</td>
</tr>
<tr>
<td>MKT_SHARE</td>
<td>-0.0200</td>
<td>(0.1035)</td>
</tr>
</tbody>
</table>

| Observations               | 701          |
| R-squared                  | 0.3803       |
| C&IVALID = Non-C&IVALID    | Prob > F = 0.0436 |

Note: Dependent variable in Table 8 is UPFRONT, which is the percentage of upfront fees relative to the estimated total borrowing costs. Bank, year, and borrower industry fixed effects are included in the model. *, ** and *** indicate that the coefficients are significant at 1%, 5% and 10% levels, respectively. Heteroscedasticity consistent standard errors are clustered at the package level.