The Impact of Bank Supervision on Corporate Credit: Evidence from Syndicated Loan Reviews*

Ivan T. Ivanov† James Z. Wang‡

June 2019

Abstract

We study the effect of bank supervision on borrower credit availability using a novel empirical approach. We vary the intensity of supervision at the loan-level by exploiting the assignment of federal examiners to syndicated loan reviews. Bank lenders decrease loan commitments in response to increased supervisory scrutiny, translating to lower credit availability and higher interest costs to borrowers. Borrowers only partially offset this loss in credit through non-bank financing. Small borrowers, without access to non-bank financing, experience even larger declines in credit. Finally, lead banks increase monitoring and adversely revise their internal risk estimates of borrowers subject to increased supervision.

*We thank Mitchell Berlin, John Colwell, Tony Cookson, Robert Cote, Michael Gibson, Matt Gustafson, Rustom Irani, Kathleen Johnson, Anna Kovner, Justin Murfin, Greg Nini, Luke Pettit, Matt Plosser, Ben Ranish, Joao Santos, John Shackelford, Philip Strahan, Todd Vermilyea, James Vickery, Edison Yu, and seminar participants at the Federal Deposit Insurance Corporation, Federal Reserve Board, Federal Reserve Bank of Chicago, Federal Reserve Bank of Philadelphia, George Mason University, U.S. Securities and Exchange Commission, 2017 Wholesale and Small Business Risk Ratings Workshop, and 2017 SGE Conference, and the 2019 SFS Cavalcade for their comments and we are grateful to Caroline Shinkle for excellent research assistance. The views stated herein are those of the authors and are not necessarily the views of the Federal Reserve Board or the Federal Reserve System.

†Federal Reserve Board, 20th Street and Constitution Avenue NW, Washington, DC, 20551; 202-452-2987; ivan.t.ivanov@frb.gov.

‡Federal Reserve Board, 20th Street and Constitution Avenue NW, Washington, DC, 20551; 202-974-7095; james.z.wang@frb.gov.

1 Introduction

Bank supervision has expanded substantially in the aftermath of the Great Recession. For example, post-crisis reforms have led to additional supervisory scrutiny through bank stress testing, more stringent regulatory monitoring of risky lending,[1] and other macroprudential reforms.[2] While these policies promote the safety and soundness of the financial system, increased supervisory oversight may also increase financing costs to bank-reliant borrowers. This could lead to reductions in credit availability to borrowers and may consequently exacerbate business cycles (Adrian and Shin (2014)).

Despite the importance of supervision for bank lending, we know little about how increased supervisory scrutiny affects borrower credit availability. We study this question using loan-level data from a comprehensive supervisory program overseeing the syndicated loan market, the Shared National Credit (SNC) Program.[3] Studying how bank supervision affects credit provisioning is especially important in the $4.7 trillion syndicated loan market[4] because syndicated loans are the primary means of financing for mid-sized and large corporate borrowers.

We use adverse SNC ratings as a measure of increased supervisory scrutiny. Specifically, SNC examiners assign a supervisory rating to each examined loan. Adverse ratings lead to higher probability of review in subsequent exams, heightened supervisory monitoring, and lower bank capital through higher loan-loss reserve requirements. Because of the higher regulatory costs associated with scrutinized loans, banks may attempt to reduce these exposures even absent changes in credit risk. Our results confirm this intuition. Within a year of receiving an adverse SNC rating, a borrower's downgraded syndicated loan com-

[1] For example, see the Leveraged Lending Guidance:
https://www.federalreserve.gov/supervisionreg/srletters/sr1303a1.pdf.

[2] See https://www.bis.org/speeches/sp170601.htm.

[3] Administered by the Board of Governors of the Federal Reserve System (FRS), Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC), the SNC program covers all syndicated deals in the United States exceeding $20 million and held by three or more supervised institutions. See http://www.federalreserve.gov/newsevents/press/bcreg/20151105a.htm

[4] See Global Syndicated Loans Review (http://dmi.thomsonreuters.com) for more on the size of the syndicated lending market.

mitments experience a decline of approximately 12% compared to otherwise similar loans. We also show that these reductions in syndicated financing are accompanied by additional commitment reductions of the borrower's other lines of credit but are partially offset with new institutional financing from the leveraged loan market.

Establishing the impact of supervision presents challenging identification problems (see, Kiser, Prager, and Scott (2015) for a discussion). Macroeconomic, borrower, and bank-specific factors may simultaneously drive both supervisory scrutiny and loan outcomes. For example, deterioration in collateral quality will simultaneously lead to heightened supervision and to reductions in credit availability to borrowers. An ideal experiment would be to exogenously increase supervisory scrutiny for observably identical loans and then to compare subsequent changes in credit.

Our research design follows similar thinking – we establish the impact of supervision by exploiting differences in leniency across federal examiners. Given that examiners are assigned to loans on observed loan characteristics, differences in examiner leniency represent a shock to the probability of a supervisory downgrade. Intuitively, our empirical strategy compares observably identical loans on the knife's edge between two supervisory rating categories that ultimately receive different ratings due to one being assigned a more lenient SNC examiner. As a result, we can isolate the effect of increases in supervisory scrutiny on loan outcomes.[5] Our identification is further enhanced with a rich set of loan and borrower characteristics such as financial covenants, collateral requirements, loan syndicate structure, and borrower public status. Additionally, we include industry-time, origination year, and lead bank fixed effects to control for time-varying industry demand for credit, time-varying credit standards, and unobserved time-invariant lead arranger characteristics such the lead arranger's reputation.

Our setting provides further advantages. SNC ratings are confidential and provided only

[5]Our empirical strategy is methodologically similar to the one employed in studies using the leniency of judges and examiners to identify causal effects of incarceration length (see, Kling (2006)), disability insurance (Maestas, Mullen, and Strand (2013)), corporate and individual bankruptcies (Chang and Schoar (2013); Dobbie and Song (2015)), and patents (Sampat and Williams (2015)).

to the supervised banks on the syndicate – affected borrowers, non-supervised lenders (such as insurance companies or hedge funds), or external third parties do not observe these ratings. The strict confidentiality reduces the chance that supervisory scrutiny also directly affects borrowers' demand for credit or the supply from non-supervised lenders, which allows us to isolate the impact of the lenders' actions on borrower credit. Additionally, participation in the SNC Program is mandatory, mitigating endogenous selection such as ratings shopping (see Skreta and Veldkamp (2009), Bolton, Freixas, and Shapiro (2012)) or catering to borrowers (Griffin, Nickerson, and Tang (2013)).[6] Finally, the scope of the SNC Program permits us to examine a much wider spectrum of borrowers beyond those large enough to obtain bond financing, to be certified by third party credit rating agencies, or to have access to the leveraged loan market.

Our results show that lenders on the syndicate take immediate steps to reduce exposure to loans and borrowers subject to greater supervisory scrutiny by decreasing their credit line sizes. This reduction in syndicated credit is driven by bank lenders and appears to be permanent. Affected borrowers only partially offset the reduction with new institutional financing from the leveraged loan market. Additionally, we find that borrowers are unable to make up for any of the loss of syndicated credit with bilateral loans and that the interest costs of bank financing increase significantly as a result of heightened supervisory scrutiny. We also show that heightened supervision may lead to weaker lending relationships as lead arrangers reduce their exposure to affected borrowers, across both downgraded and unaffected loans.

The total reduction in credit as a result of heightened supervisory scrutiny is substantially larger for small borrowers – approximately 23 percentage points. This is because small borrowers are unable to offset the loss of credit with non-bank financing. In contrast, large borrowers mitigate the loss in syndicated credit with institutional financing from the leveraged loan market. Also unlike large borrowers, small borrowers are significantly more likely to face termination of their lead bank lending relationship.

[6]Borrowers that seek out ratings are also likely to have decreased bond yields, lower cost of capital, and greater access to financing (see Sufi (2009) and Kisgen and Strahan (2010)).

We further find that receiving an adverse supervisory rating leads to large changes in banks' risk management. Lead banks are 83% more likely to downgrade their internal ratings and 16% more likely to actively monitor loans receiving supervisory downgrades than otherwise similar loans. Additionally, we show that supervised banks on the syndicate significantly increase both the probability of default and the expected loss estimates of loans receiving supervisory downgrades. These findings point to real effects on banks' risk management even though banks are not required to match supervisory ratings or to increase monitoring. As a falsification test, we show that there is no direct effect of adverse supervisory ratings on loan quality, as measured by loan delinquency or covenant violations. In other words, our results on credit availability are driven by differences in supervisory scrutiny rather than by changes in underlying risk.

We also use an alternative definition of adverse ratings that is likely to result in greater supervisory scrutiny. Our estimates are substantially larger in these cases, which is consistent with the idea that increasing scrutiny on riskier loans leads to even larger effects on corporate credit. In addition to our preferred definition of examiner leniency based on examiners' recent decisions, we estimate two alternative measures of examiner leniency that are based on the entire time series of supervisory ratings assigned by each examiner or a rolling three-year window of past supervisory ratings. These alternative definitions of the instrument lead to very similar effects of supervisory scrutiny, suggesting that the predictive power of examiner leniency is driven by the time-invariant component of leniency.

Our study is closely related to Granja and Leuz (2018) that also examines the effect of supervision on bank credit supply. The authors study the absorption of a banking regulator into a stricter regulator and find that stricter supervision led to expansion of small business lending. The authors point to supervision alleviating agency costs within banks which may have previously hindered lending growth. We find the opposite effect – that stricter supervision leads to a reduction in credit availability to the affected borrowers. This difference comes from Granja and Leuz (2018) focusing on changes in supervision at the bank-level, while our

study examines changes in supervision at the loan-level. Top-down bank supervision emphasizes bank-level risk management and culture, thereby affecting banks' incentives to change lending both across and within portfolios. For example, stricter top-down supervision may lead to a given bank reducing its exposure to real estate loans and simultaneously increasing small business lending. In contrast, our study isolates the direct impact of supervision on individual loans and borrowers, keeping bank risk management and culture fixed.

We are also related to Kim, Plosser, and Santos (2018) that find that stricter supervisory oversight coming from the Leveraged Lending Guidance led to migration of leveraged lending from banks to non-banks, reducing the effectiveness of macro-prudential regulations. Similar to their study, we find that institutional investors increase lending to borrowers facing reductions in bank credit as a result of greater supervisory scrutiny. While Kim, Plosser, and Santos (2018) study leveraged lending, we cover a broader sample of syndicated loans which may not be as easily substitutable for non-bank financing. In fact, we show that the total reduction in credit availability as a result of heightened supervisory scrutiny is substantially larger for small borrowers that are unable to switch to non-bank financing. While the loss of credit is mitigated within the sample of large borrowers, we show that institutional investors are not able to fully offset the loss in bank credit as a result of greater supervisory scrutiny.

We contribute to the literature examining the effect of supervision on banks' risk taking and profitability, which has generally shown that supervision is positively associated with reduced probability of bank failure, higher profitability, and valuations. Agarwal et al. (2014) finds that federal regulators differ from state regulators in leniency, whereby lenient regulation increases the chance of bank failures. The authors suggest that variation in agency resources or greater concern for local economic conditions may explain some of the differences in leniency. Hirtle, Kovner, and Plosser (2016) and Rezende and Wu (2013), exploiting differences in regulatory districts, bank size, or examination frequencies, show that supervision reduces bank risk taking and may lead to greater bank profitability. Exploiting variation in supervisory office closures and relocations, Gopalan, Kalda, and Manela (2016), Kandrac

and Schlusche (2019), and Lim, Hagendorff, and Armitage (2016) show that less supervisory oversight leads to higher bank risk taking and higher probability of bank failures. In a related study, Bisetti (2017) shows that reduced supervision from the Federal Reserve leads to lower equity valuations. We complement these studies by showing how some of the costs of supervisory scrutiny may be borne by borrowers. Our paper also complements the extensive literature examining the effect of bank capital regulation on bank risk and the provision of credit (see for example Peek and Rosengren (1995), Thakor (1996), Brun, Fraisse, and Thesmar (2013), Jimenez et al. (2017), Irani et al. (2018)).

We also contribute to the literature examining the trade-off between public and private disclosure of supervisory assessments. While theory work has studied the effects of private supervisory disclosures (Berlin (2015))[7], empirical work on supervisory disclosures has almost exclusively focused on public disclosures due to data availability (see for example Bischof and Daske (2013), Morgan, Peristiani, and Savino (2014), Ellahie (2013), and Glasserman and Tangirala (2015)). One open question is whether privately disclosed supervisory ratings are effective in reducing banks' risk in the absence of external market pressure. We shed light on this debate – our direct evidence suggests that private disclosure alone could change incentives and reduce risky loan exposures.

Our paper uses supervisory credit ratings as a proxy for the intensity of bank supervision, and as a result is also related to the literature on credit ratings and access to financing. This stream of work has shown that higher credit and debt ratings are correlated with increased deposits and wholesale funding for financial intermediaries (Karam et al. (2014)), lower sovereign credit spreads (Cantor and Packer (1996)), and higher leverage ratios (Faulkender and Petersen (2006)). Almeida et al. (2014) exploits the exogenous variation in the sovereign debt ceiling to find that lower third party credit ratings lead to higher bond yields and lower investment. We complement this strand of work by focusing on scrutiny as implied

[7]The author proposes a model in which privately disclosed ratings lead to efficiency gains via greater amounts of truth-telling and lower monitoring costs. See also Goldstein and Sapra (2013) noting that public disclosures may have additional costs that are difficult to quantify such as distorting incentives.

by supervisory ratings, which operate differently from third-party ratings in how they may be perceived by banks.

2 Institutional Details

Our sample comes from the Shared National Credit Program. Administered by the Federal Reserve System (FRS), Federal Deposit Insurance Corporation (FDIC), and the Office of the Comptroller of the Currency (OCC), the SNC Program covers all deals exceeding $20 million and held by three or more supervised institutions (SNC inclusion criteria).[8] These include both domestic and foreign institutions, as well as commercial banks, investment banks, insurance companies, and investment companies such as CLOs, mutual/hedge funds whenever the parent company is a regulated entity. As of the May 2015 SNC exam, SNC commitments totaled $3.9 trillion, a 15.3 percent increase from 2014, of which $1.04 trillion was examined.[9]

In early February of each year, the supervised institutions submit information on all of their loans that meet the SNC inclusion criteria discussed above. We refer to these data as the "full SNC portfolio". In the first three weeks of March, the Federal agencies then select an exam sample of loans from the full SNC portfolio to "assess risk in the largest and most complex credits shared by multiple financial institutions."[10] The exam sample is likely to include larger and riskier credits than the full SNC portfolio as well as loans that were previously given adverse supervisory ratings.[11] Overall, the exam sample constitutes a large percentage of the total lending volume in the full SNC portfolio, ranging between 26.5% in

[8]The OCC supervises national banks and nationally chartered foreign banking organizations (FBOs), the FRS supervises state member banks and branches of FBOs, and the FDIC is primarily responsible for state non-member banks and small banks owned by FBOs.

[9]http://www.federalreserve.gov/newsevents/press/bcreg/20151105a.htm

[10]Please see https://www.fdicig.gov/reports07/07-012-508.shtml and the Shared National Credit Joint Press Release dated November 7th, 2014:
http://www.federalreserve.gov/newsevents/press/bcreg/20141107a.htm

[11]Please see https://www.federalreserve.gov/newsevents/press/bcreg/20151105a.htm and http://www.occ.treas.gov/news-issuances/bulletins/1998/bulletin-1998-21.html.

2015 and 40.90% in 2009 in the period from 2007 through 2015.[12] The list of sampled loans is referred to as the "exam sample".

In the last week of March, the exam sample is sent to the EIC (Examiner-in-Charge) of each supervised institution. Our conversations with the SNC administrators have revealed that the EIC typically coordinates one examination team for a large banking organization because of the large volume of loans. The EIC reviews the observable characteristics of the loans assigned to their team and may remove loans that statistical algorithms determine to be high quality. The EIC then assigns each loan to two examiners. The first examiner typically comes from the primary Federal regulator of the supervised institution, while the second examiner comes from one of the other two Federal agencies. In cases in which the first two examiners disagree on the rating, a third examiner is brought in as an independent tie-breaker. Examiners are assigned to loans based on agency affiliation, bank location, and industry classification – all factors that we explicitly control for in the empirical analysis. On occasion the regulators target particular industries for closer review (e.g. leveraged finance or oil and gas) and may assign specialists to read these loans.

Between April 1^{st} and May 1^{st}, the lead bank on the syndicate is asked to update the loan data pertaining to the exam sample. Given that one of the purposes of the SNC Program is to assess the accuracy of internal risk controls, banks have strong incentives to submit up-to-date and unbiased information for each loan at the time of review. The SNC exam starts in the first week of May and lasts for approximately 6-8 weeks. The first examiner assigned to each loan records and summarizes the available information and assembles a database of supporting information that is also used by the other examiners. Supporting documentation typically comes from information provided by the lead bank pertaining to loan details such as collateral, financial covenants, and delinquency status.[13] The examiners may also rely on external sources for additional loan- and borrower-specific information. Overall, the review

[12]See https://www.federalreserve.gov/bankinforeg/snc.htm.

[13]See http://www.occ.treas.gov/news-issuances/bulletins/1998/bulletin-1998-21.html and http://www.federalreserve.gov/newsevents/press/bcreg/20141107a.htm

process is extensive and time-consuming.[14]

2.1 SNC Ratings and Regulatory Scrutiny

After reviewing a loan, each of the examiners independently rates the loan in one of five rating grades: "pass" (best), "special mention", "substandard", "doubtful", and "loss" (worst).[15] The non-pass ratings are often referred to as "criticized", while loans rated "substandard" and lower are known as "classified". "Special mention" loans have some minor weaknesses that could result in further credit deterioration. Loans rated "substandard", "doubtful", or "loss" have significant weaknesses in credit risk and entail required loan-loss reserves of 20%, 50%, and 100% of the loan utilized exposure amount, respectively.[16] The final rating is decided by a majority vote with the third voter only necessary in cases of ties – see illustration of the voting process in Figure 1.[17] Our main analysis defines an adverse rating whenever a loan is rated "criticized" and in additional robustness analysis whenever a loan is rated "classified".

Increasing loan loss reserves leads to higher provision expenses for the bank, higher reserve buildup, and, as a result, lower net income. Ultimately, significant amounts of loan loss reserves may adversely affect bottom line profits and bank capital, which may push some banks closer to their capital requirements.

After the SNC decision, the rating is communicated to the participating banks on the syndicate but is not communicated to non-supervised lenders, to the borrower, or to other third parties. SNC ratings are considered privileged information and cannot be shared. Banks have the right to appeal the SNC exam rating, and sometimes the appeals are coordinated and submitted by the lead bank on behalf of all supervised syndicate members.[18] Less than

[14]For instance, in 2007 the 122 FDIC examiners alone spent 15,411 hours on reviewing SNC credits, please see https://www.fdicig.gov/reports07/07-012-508.shtml

[15]Please see more detail on the rating scale here http://www.occ.gov/publications/publications-by-type/comptrollers-handbook/rcr.pdf.

[16]http://www.federalreserve.gov/newsevents/press/bcreg/bcreg20141107a1.pdf

[17]See http://www.occ.treas.gov/news-issuances/bulletins/1998/bulletin-1998-21.html.

[18]See http://www.occ.treas.gov/news-issuances/bulletins/1998/bulletin-1998-21.html for further details on this process.

0.25% of the examined loans are appealed, in which appeals are successful in only a fifth of those cases.

In addition to higher loan-loss reserves, there are additional costs of adverse SNC reviews. Adversely-rated loans are sampled for review at higher rates in future exams, which further increases the probability of additional loss recognition. For example, loans rated pass by the SNC program have approximately 17% chance of being sampled again in the following year compared to about 70% probability for loans rated non-pass by the SNC program. Supervisors could also request to continually monitor problematic loans from previous exams, even if loans no longer meet the SNC inclusion criteria.[19] Conditional on remaining in banks' portfolios and being repeatedly sampled, these loans also have a higher probability of being further downgraded and assessed losses in the following year. For example, loans rated "special mention" by the SNC program have 32% probability of being further downgraded in the following year, while loans rated pass only have 14% probability of being given a lower rating in follow-up reviews. We also consider an alternative definition of adverse ratings that utilizes "classified" share, resulting in greater regulatory scrutiny.

2.2 Sample and Descriptive Statistics

Our study utilizes data on loan commitments, outstanding drawn amounts, maturity, loan type, and the lead bank's internal risk assessment of the loan's quality mapped to the same scale as the supervisory SNC ratings. We also use the syndicate participant shares including those of the lead bank, foreign banks, and non-banks, as well as the borrower's industry classification and geography. From the SNC review, we observe each examiner's individual rating, the final supervisory rating, as well as supporting documentation. While the SNC data have been collected since 1977, we only have voting data and supporting documentation starting in 2007. The supporting documents contain covenant and collateral information that we scan and numerically codify. We recover the type of covenants used in

[19] Please see https://www.occ.gov/news-issuances/bulletins/1998/bulletin-1998-21.html.

each loan contract such as restrictions on accounting ratios based on cash flow, investment, distributions, debt, and net worth. We further observe whether borrowers are currently compliant with the covenants, whether the loan has been amended to avoid non-compliance with covenants, and whether violations have been waived.

Our SNC sample consists of 18,608 loans that were sampled for examination during the 2007-2016 period and have available information on loan amounts, lender shares, as well as covenant and collateral specifics. Table 1 shows summary statistics for this sample where we differentiate between lines of credit, term loans, and other types of loan commitments. The sample is roughly evenly split between credit lines and term loans – 9,230 versus 8,470 commitments. Additionally, we have 908 commitments that are different from these two types of loans such as capitalized lease obligations, lease financing agreements, construction loans, demand loans, and other real estate owned loans. Given the small sample size of these other types of loans, the vast majority of our analysis focuses on lines of credit and term loans.

Average commitment sizes for lines of credit are approximately $274 million with a median of $108 million. In addition, only a minor fraction of credit lines has been utilized with average utilization ratio of about 39% and average drawn outstanding amount of $96 million. This suggests that there may be substantial undrawn debt capacity under credit lines. In contrast with credit lines, term loans are substantially larger – the average term loan is approximately $421 million with a median of $191 million. Average term loan maturities are slightly longer than those of credit lines at 72 months. Similar to results documented in prior literature, a substantial fraction of term loans is held by non-bank institutional investors while non-banks are unlikely to participate in lines of credit (see Irani et al. (2018)). For example, the average share of non-bank investors in term loans is approximately 49% for term loans and only 12% for lines of credit. Additional evidence consistent with the idea that banks are less likely to hold term loans is that banks report about 87% of credit lines to be held for investment on their portfolio and only about 67% of term loans to be held

for investment. Term loans are also substantially riskier with approximately 6% being in non-accrual status as compared to about 4% for lines of credit.

Slightly less than half of commitments belong to privately-held companies – 48% of credit lines and 45% of term loans. This may explain some differences with the syndicated loans of public companies. For example, the average maturity in the full sample of loans is approximately 66 months which is significantly higher (by approximately 12-24 months) than the maturities of Dealscan loans and loans to companies matched to SEC filings (see Roberts and Sufi (2009)). "Voter rating" and "lead rating" are indicators for non-pass (criticized) or adverse ratings given by the SNC Program and the lead bank, respectively. Specifically, "voter rating" is the SNC majority vote and "lead rating" representing the lead bank's internal assessment mapped to the examiner scale. Based on these metrics, term loans appear substantially riskier than lines of credit. For example, approximately 36% of lines of credit have adverse ratings, while about 42% of term loans have adverse supervisory rating.

3 Empirical Strategy

It is empirically challenging to identify the direct impact of supervisory scrutiny on loan outcomes as unobserved factors drive both loan outcomes and supervisory scrutiny. For example, deterioration in loan collateral value may simultaneously lead to greater supervisory scrutiny and reductions in loan commitments. Without properly accounting for the collateral shocks, estimates would erroneously attribute the reduction in loan commitments to greater levels of supervisory scrutiny rather than the collateral deterioration. One way to address this challenge is to rely on exogenous shocks to supervisory scrutiny that are uncorrelated with underlying risk. The conditional quasi-random assignment of bank examiners provides such a shock and helps us account for the endogeneity of loan quality and loan outcomes. The intuition for our research design is that idiosyncratic differences in leniency across examiners lead to variation in supervisory ratings and supervisory scrutiny.

We use the leniency of the first examiner as an instrument for the final supervisory rating of a given loan. While the examiner assignment process is not explicitly random, several aspects of the research design support the conditional quasi-random assignment assumption. Recall that the first examiner collects relevant information on each loan and prepares a detailed summary/analysis on the credit quality of the loan. Before the first examiner collects this information, there is limited scope for the assignment of examiners to loans to be based on variables that we cannot observe and control for. To this end we control for borrower geography, industry, or origination year. For example, Figure 2 shows that examiners tend to specialize in certain industries but that such specialization is only partial as the vast majority of examiners review loans in different industries.

We also control for a rich set of loan characteristics. To the extent there are concerns that stricter examiners may be called upon to review larger or longer maturity loans, we mitigate these concerns by flexibly conditioning on non-parametric splines constructed from the loan commitment amount and maturity variables. In contrast with the first examiner, it is possible that the second or third examiners may be assigned to a given loan because the first examiner determined that the loan has substantial underwriting weaknesses, which may be difficult to control for explicitly. That is why we only use the strictness of the first examiner on each loan.

For each loan, we calculate the first examiner's relative leniency as the average of that examiner's votes in a given year, excluding the loan in question, and net of the average vote in the corresponding federal examination district in the same year. Defining leniency at the examiner-year level allows for variation in leniency across years due to training, experience, or other time-varying factors. Differencing the district mean allows the relative leniency measure to be standardized across examination teams that supervise banks from different regions with different risk profiles.[20] For robustness, we calculate the first examiner leniency from the entire history of an examiner's votes or a rolling three-year window of past votes.

[20]Our results are similar if we do not difference out the district mean.

Figure 3 shows the density of cases per examiner-year, the 25th and the 75th percentiles of which are 7 and 17 cases, respectively. We define our leniency measure only for examiners with 5 or more decisions per year, which alleviates concerns that the variation in the instrument could be due to noise (see, e.g., Heckman (1981)).[21] Figure 4 shows the leniency measure for the examiner-loan-years in our sample. Relative to the examination district's average rating, most examiners have a leniency measure that is close to zero with slightly more mass above the mean of the $Leniency_{-ijt}$ distribution. Specifically, positive $Leniency_{-ijt}$ indicates that examiner j is more likely to give higher ratings than his or her peers in the same district, while negative $Leniency_{-ijt}$ indicates relative strictness. The rating tendencies of roughly 20% of the examiner-years is at least 30 percentage points away from the mean of the $Leniency_{-ijt}$ distribution relative to the district mean.

While explicitly assigning examiners based on leniency may be practically difficult, one concern is that more experienced examiners may be more likely to review difficult-to-rate low credit quality loans. Assignment in this manner represents a threat to the validity of our identification strategy as more experienced examiners will simultaneously appear strict and review loans that are more likely to experience adverse loan outcomes. Figure 5 presents our leniency measures against the number of lifetime cases of a given examiner. We find no relation between these measures of experience and leniency for our set of bank examiners. While it may be plausible that certain examiners are chosen because of their experience, we find no evidence that this translates to an increased or decreased propensity to downgrade. This reduces the concern that assignment on experience could be confounding our results.

Our identification assumption rests on the orthogonality of examiner leniency to underlying unobservable loan-specific trends conditional on controls. This is not to say that SNC ratings are random or that examiner ratings contain no information. We argue that the identifying variation in our empirical setup comes from examiner-specific idiosyncratic factors unrelated to the loan itself. For loans close to the border between the pass and non-pass

[21] Our results are essentially the same if we require that the leniency of the first examiner is based on at least 10 cases.

(adverse) rating categories, these differences may be pivotal. Although all examiners at the federal agencies go through rigorous training, it is plausible that for a loan on the knife's edge between two rating categories, differences in examination styles, education, training or other examiner-specific factors may tilt the rating in one way or another. Given the amount of information that has to be analyzed and the high level of expertise involved, there is likely to be room for reasonable examiners to come to different conclusions even when presented with the same information set. This, in part, explains the rationale for using a voting committee rather than a single examiner so as to minimize the variance of idiosyncratic factors.

4 Results

4.1 Leniency and Adverse Ratings

Our first set of results shows the first-stage relation between leniency and adverse SNC ratings. Each loan facility is given a final rating SNC_{it} that is the result of a majority vote of three individual examiner votes SNC_{it}^{1st}, SNC_{it}^{2nd}, and SNC_{it}^{3rd}, where the third examiner may not be needed if there is already agreement among the first two examiners. We instrument for the final rating, SNC_{it}, with the first examiner's rating leniency $Leniency_{-ijt}$.

Table 2 presents the coefficient estimates of leniency in the first stage regression when adding an increasing cascade of controls. Moving from columns (1) to (2), we find that examination district-year, borrower industry-year in addition to review location, lead bank, as well as origination-year fixed effects significantly affect the relation between the final supervisory rating, SNC_{it}, and $Leniency_{-ijt}$. In column (3) we show that loan characteristics also collectively affect the relation between adverse SNC ratings and examiner leniency. For example, basic loan-specific information such as loan type, loan amounts and maturity, credit line utilization ratio, the internal rating of the lead bank, and syndicate composition collectively affects the association between supervisory ratings and the first examiner's leniency. This is consistent with the discussion in Section 2 that examiner assignment depends on

the federal supervisory district overseeing the lead bank, borrower industry, lead bank identity/location, loan origination standards, and basic observable loan information – factors we observe and explicitly control for.

In columns (4) through (6) we include loan-specific information that is unobserved at the time of assignment and that is obtained by the first examiner during the examination process. For example, details on financial covenants, loan collateral, as well as specifics on the monitoring by the lead bank are all gathered by the first examiner in the process of preparing the loan report. To the extent that the first examiner's assignment is purely based on the basic borrower-, lead bank-, and loan-specific information that we control for in columns (1) through (3), these additional characteristics should not affect the association between adverse supervisory ratings and leniency. Indeed, adding financial covenant, collateral, as well as active bank monitoring indicators in column (4) through (6) does not significantly affect the relation between supervisory ratings and leniency. Given that covenant structure, collateral structure, and lead bank monitoring activities are all highly correlated with loan risk, the stability of the coefficients in columns (4) through (6) suggests that it is also unlikely that the first examiner's assignment is based on unobserved loan risk.

Overall, more lenient examiners are less likely to deliver an adverse rating, all else equal. A one standard deviation increase in the first examiner's leniency (0.26) is associated with approximately 11 percentage points reduction in the probability of an adverse rating. Being assigned a more lenient examiner translates to a lower probability of an adverse rating and therefore a substantially lower probability of additional regulatory scrutiny in the following year. For example, Section 2.1 illustrates that downgraded loans are more likely to be sampled in future exams and more likely to be further downgraded by supervisors.

4.2 Supervisory Scrutiny and Borrower Credit

We first examine the direct effect of supervision on follow-on changes in loan amount and maturity. Specifically, we examine changes in the size of credit commitments, utilization of

lines of credit, and loan exits. Heightened supervision could lead to loan exits by lenders renegotiating or terminating loans to avoid supervisory coverage (see Ivanov, Ranish, and Wang (2017)). Lenders could also partially reduce loan commitment amounts in order to decrease exposure to loans subject to heightened supervisory scrutiny. We investigate the correlation between the variables of interest and supervisory scrutiny in an OLS setting and we then parse out the causal contribution of supervisory ratings using our instrumental variable approach. Given the large differences in credit lines and term loans described previously, we present results separately for these two loan types.

Our OLS specification is given by the following equation:

$$Y_{i,t+1} = \alpha_0 + \alpha_1 SNC\ Rating_{i,t} + \alpha_2 Lead\ Rating_{i,t-1} + \boldsymbol{\gamma X_{i,t}} + \varepsilon_{i,t+1}, \tag{1}$$

where Y_{it+1} denotes loan i's outcome in year $t+1$, $SNC\ Rating_{it}$ is an indicator for an adverse SNC rating for loan i in year t, $Lead\ Rating_{i,t-1}$ is an indicator for an adverse lead bank rating for loan i in year $t-1$, and $\boldsymbol{X_{it}}$ is a vector of loan- and borrower-level control variables, covenant and collateral type indicators, as well as industry-year (based on 2-digit NAICS codes), lead bank, review location, district-year, and origination year fixed effects. One way to view differences between the SNC and the lead bank internal rating is that the SNC rating is designed as a validation check on the accuracy of the lead bank internal rating. In other words, the two risk metrics measure the same type of risk in the same fashion.

Our preferred specification uses the previous year's lead bank rating, $Lead\ Rating_{i,t-1}$, if available. Given that the lead bank observes the list of sampled loans and updates their rating immediately prior to the SNC exam (see Section 2), banks have strong incentives to anticipate the regulators' rating decision. For example, a significant fraction of deviations of the lead bank rating from the SNC rating may impose additional regulatory costs on banks through MRIAs and MRAs. This results in high degree of collinearity between the SNC rating and the contemporaneous lead bank rating, which is likely to increases the volatility

of our estimates. In robustness tests, we use the contemporaneous lead bank rating as an alternative measure of credit quality and find qualitatively similar results, albeit more volatile.

We flexibly control for the commitment size and the maturity of the deal using restricted cubic splines. In addition, we control for the lead bank rating, the fraction of loan commitment that has been utilized (in the case of lines of credit), the share of the lead bank, foreign banks, and non-banks in the loan, and indicators for publicly-traded status, held-for-investment status, non-accrual status, as well as whether a loan is leveraged or is part of a distressed debt restructuring. Also, all continuous outcome variables are winsorized at the 1^{st} and 99^{th} percentiles.

We use two-stage least squares (2SLS) to study the causal impact of supervisory scrutiny and our IV specification is summarized as follows:

$$SNC_{i,t} = \gamma_0 + \gamma_{it} Leniency_{-i,j,t} + \gamma_2 Lead\ Rating_{i,t-1} + \boldsymbol{\lambda X_{i,t}} + \varepsilon_{i,t}, \tag{2a}$$

$$Y_{i,t+1} = \theta_0 + \theta_1 \widehat{SNC_{i,t}} + \theta_2 Lead\ Rating_{i,t-1} + \boldsymbol{\zeta X_{i,t}} + \varepsilon_{i,t} \tag{2b}$$

Panel A of Table 3 presents results for the effect of supervisory scrutiny on loan amounts (in percent changes) and maturities. We investigate the correlation between our outcome variables of interest in an OLS setting (column 2) and we then parse out the causal contribution of supervisory ratings using our instrumental variable approach (column 3). Our results show that the OLS estimate of the effect of heightened supervisory scrutiny on credit line commitment amounts is roughly a decrease of 9%, while the IV estimate indicates a significantly larger reduction of approximately 12% within a year of receiving an adverse SNC rating. The IV estimate is economically large given the standard deviation of the change in credit line commitments is approximately 22%. Additionally, the OLS estimate is attenuated because it pools the direct causal effect of supervisory ratings with the associative relations between supervisory ratings and loan outcomes driven by unobserved factors such as credit risk. For example, lower credit quality may result in either commitment increases

or reductions depending on macroeconomic conditions and lender financial health.[22]

In contrast, we do not find any change in drawn amounts under credit lines following SNC downgrades. Next we investigate how supervisory ratings relate to loan maturity. The IV estimates imply a statistically imprecise 4 month increase in maturities of credit lines due to increased supervisory scrutiny. This means that in addition to decreasing exposure, lenders may also allow borrowers more time to repay lines of credit subject to supervisory downgrades. The IV estimate in the maturity specification is also significantly larger and the opposite sign from the OLS estimate. The OLS association is likely to be attenuated for the exact same reasons as in the commitment change specifications – lower credit quality may result in either maturity extensions or reductions depending on macroeconomic conditions and lender financial health. In contrast, the causal effect of supervisory downgrades indicates maturity increases to allow borrowers more time for loan repayment and make the loan less risky.

Panel B of Table 3 shows that while we find large effects of supervisory scrutiny on credit line size and weaker effects for maturity, the IV estimates for the change in term loan commitments is close to zero and statistically insignificant. This is because the IV estimate only captures the direct impact of lenders' actions as a result of the supervisory downgrade and does not incorporate the borrower's actions. Specifically, syndicated lenders are likely to have limited recourse to accelerate term loan repayment in the absence of changes in credit risk given the contracting structure of term loans allowing for less renegotiation (see, Berlin, Nini, and Yu (2018)). In contrast, the OLS estimates are larger in magnitude and statistically negative indicating term loan repayments following lower supervisory ratings. This result is suggestive of the driving force behind the OLS association – riskier borrowers repaying term loans whenever they can obtain lower-cost financing from non-bank sources such as equity and bonds markets (see, Gilson and Warner (1998)).

[22]In favorable economic environments lenders may be able to cut loan commitments following reductions in credit quality as it is easier for borrowers to access bonds markets and repay bank loans. In contrast, in economic downturns when non-bank funding is scarce lenders may accommodate borrowers following increases in credit risk.

Last, we show that heightened supervisory scrutiny does not significantly affect loan exit. This is in contrast with the OLS estimate that is negative and is statistically significant. This is because increases in credit quality is likely to be associated with higher investment opportunities and greater access to bonds and equity financing. Our two-stage procedure isolates solely the channel of increased supervisory scrutiny.

While we find that adverse ratings lead to a reduction in loan commitments, one possibility is that banks strategically substitute away from the downgraded loans. For example, banks may be able to offset the commitment decreases through additional lending to the borrowers facing supervisory downgrades. Consequently, we consider the effect of supervisory scrutiny on other loans to the same borrower, which captures substitution across different syndicated loans. In Table 4, our specification slightly augments the OLS and IV specifications from Equations 1 and 2b by presenting outcome variables that are at the borrower-level. Specifically, we investigate how a supervisory loan downgrade affects the change in commitments of all other loans to the same borrower excluding the loan experiencing a supervisory downgrade.

The IV estimates point to large and significant spillovers to other syndicated loans within the same bank-borrower relationship. Following an adverse supervisory rating, lending through other credit lines decreases by approximately 10 percentage points, while lending through other term loans increases by about 13 percentage points. While there appears to be some additional lending to the affected borrowers, the substitution effects seem insufficient to offset the large decrease in credit line commitments. Specifically, we find that total credit line financing decreases by approximately 22 percentage points, total term loans increase by 10 percentage points, and total commitments combined drop by an average of 11 percentage points following an adverse supervisory rating. Although other syndicated lending offsets some of the decrease in credit availability, total syndicated lending still falls. This overall decrease in credit availability following an adverse rating may be long-lasting due to persistent borrower-lender relationships (see Boot (2000)).

4.3 Supervisory Scrutiny and Syndicate Composition

Table 5 shows the effects of heightened supervisory scrutiny on the composition of the syndicate. We find that the relative composition of syndicate participations changes as a result of greater supervisory scrutiny. The IV estimates indicate that the lead bank reduces its share by approximately 3 percentage points on other loans extended to the same borrower, and by about 6 percentage points across all credit commitments of a given borrower. These effects are large as the average lead bank share in the loan commitments of a given borrower is approximately 15%. Additionally, we find that supervisory downgrades cause non-lead banks on the syndicate to reduce their exposure to borrowers by approximately 20 percentage points. Overall, bank lenders sharply cut loan exposure associated with increased supervisory scrutiny.

We find evidence of substitution to non-bank finance as non-bank lenders substantially increase their lending through other loans of the same borrower by nearly 18 percentage points. As a result, the amount of total non-bank participations increases by a total of 15 percentage points which is similar to the corresponding increase in term loan financing identified in Table 4. Lastly, we show that a large fraction of this effects is coming from institutional leveraged loan financing as institutional terms loans increase by about 10 percentage points.

This finding is consistent with Kim, Plosser, and Santos (2018) who find that increased regulation coming from the Leveraged Lending Guidance led to migration of leveraged lending from banks to non-banks. Continued demand from borrowers following the guidance caused non-bank lenders to increase their participation in syndicated financing. We build off their findings by showing that such substitution is incomplete and does not fully offset the loss of bank financing.

Additionally, we study a comprehensive sample of syndicated loans rather than just leveraged term loans, in which banks typically retain only a minority share. In Table 6 we investigate whether the total reduction in credit and the substitution to non-bank finance

varies with firm size. Small borrowers are less likely to have access to non-bank finance and the institutional leveraged loan market and as a result are less able to offset reductions in bank credit coming from supervisory downgrades. To this end we replicate some of our main findings within a sample split based on borrower size. We define small borrowers as the ones in the bottom quartile of total syndicated credit commitments (below $145 million) as of the previous year and large borrowers to be the ones in the top three quartiles. We show that the total reduction in credit as a result of heightened supervisory scrutiny is substantially larger for small borrowers. We also show that small borrowers are unable to offset the reduction in credit with non-bank financing. In contrast, large borrowers offset a large fraction of the loss in syndicated credit with institutional financing from the leveraged loan market. Our results suggest that, at least in the short run, it may be difficult for other types of financial intermediaries to fully offset cuts in bank credit supply due to increased supervisory scrutiny and that this is especially problematic for small borrowers.

It is possible that the reduction in total syndicated financing documented in this section is offset by bilateral bank loans. While this unlikely because syndicated financing is typically less expensive than bilateral lending due to lender diversification in syndications, we nevertheless test this hypothesis using data on both bilateral and syndicated bank lending from Schedule H.1 of the Federal Reserve's Y-14Q data collection. This data collection began in June of 2012 to support the Dodd-Frank Stress Tests and the Comprehensive Capital Analysis and Review. The reporting panel includes bank holding companies exceeding US $50 billion in total assets. The 35 institutions in the Y-14 collection provide loan-level data on their corporate loan portfolio whenever a loan exceeds $1 million in commitment exposure.[23] We build a firm-year-level panel of the total commitments of each borrowers appearing in the bank lending portfolios. To match with the SNC data we keep loan data from the quarter closest to the end of each calendar year, which typically is Q4. We then match these data for each firm-year to the SNC data by using the borrower IRS tax identification number.

[23]As Bidder, Krainer, and Shapiro (2016) document, the commercial loans in the Y-14 data represent approximately 70% of all commercial loans extended in the United States.

We match approximately 55% of SNC borrower-years.

In Panel C of Table 6, we replicate our OLS and IV specifications with two total bank credit outcomes: total commitments (both bilateral and syndicated) and the weighted average interest rate to a given borrower as of year $t-1$. We show that total commitments change very similarly to total syndicated bank commitments showing that bilateral bank loans do not offset the loss of syndicated bank credit. In addition, heightened supervisory scrutiny leads to large increases in the average interest rate faced by borrowers of approximately 1.44%. This implies that in addition to the reduction in credit availability, borrowers also face higher interest costs following increases in supervisory scrutiny.

4.4 Changes in Bank's Risk Management

While banks take immediate steps to reduce exposures to scrutinized loans, we also find evidence that banks adjust their internal risk management. Using both OLS and IV specifications, we study banks' risk management in Table 7.

Table 7 shows that using the full set of controls, the probability of an adverse bank internal rating increases by 73% following an adverse rating from the SNC Program. The causal effect from the IV specification is slightly larger, at about 83%. Similarly, banks on the syndicate that are required to report Basel risk metrics increase the probability of default (PD) and expected loss (EL) estimates of downgraded loans. Also, similar to the bank internal rating results, the IV estimates are slightly larger but overall fairly similar to those in the OLS specifications. It is important to note the magnitude of these effects, especially given there is no explicit requirement that banks harmonize their internal loan ratings or other risk metrics with the supervisory rating. The large IV estimates support the idea that even without an explicit requirement, banks exhibit a strong tendency to match their internal risk assessments to the supervisory assessments. Additionally, our results show that internal downgrades transmit to the borrower's other loan commitments as well. Receiving an adverse SNC rating leads to 83% increase in the probability of downgrade in the borrower's

other loan commitments.

We also study how adverse supervisory ratings impact bank monitoring activities. We show that greater supervisory scrutiny leads to about 16% increase in the probability of active monitoring by the lead bank in the following year. This shows that beyond just changing their internal assessments, banks are exerting additional effort and resources in responding to SNC downgrades. The additional information gathered from increased monitoring could lead to further reductions in credit supply past our one-year horizon.

As a falsification test, the next two rows of Table 7 focus on the effect of supervisory scrutiny on more concrete measures of credit quality such as loan delinquency and covenant violation. Our IV estimates show that there is not a direct relation between supervisory scrutiny and these measures of loan quality. In other words, otherwise similar loans assigned to stricter examiners are no more likely to become delinquent or violate covenants in the following year. Moreover, due to confidentiality of the SNC disclosures, the only mechanism through which adverse ratings can causally impact loan distress or covenant violations would be through banks' actions. Banks would have to renegotiate the terms of the loan and then such renegotiation would have to contribute to future deterioration in loan quality. We cannot rule out that there may be such a link over extended periods of time. However, over shorter time horizons, the IV estimates provide even more evidence that the impact of leniency on adverse SNC ratings is not driven by differences in loan quality.

Additionally, the absence of causal link combined with the strong positive OLS association between adverse supervisory ratings and loan delinquencies and covenant violations shows examiner ratings contain predictive information not found in the internal ratings. This could be driven by examiner expertise. Even though lead banks are the primary relationship holders on the loan syndicate and are more likely to possess private information about loan performance than external parties,[24] examiner ratings could add valuable information to internal ratings because of agency conflicts within banks (between loan officers and up-

[24]Please see Boot (2000) for a review on relationship banking.

per management) or regulatory arbitrage.[25] Consistent with this notion, recent empirical evidence shows that bank's internal ratings might not fully incorporate information from borrower financial statements or loan underwriting terms,[26] or that the bias in internal default estimates may be positively correlated with regulatory capital (see, Plosser and Santos (2014)). One source of expertise could also mean that the examiner's information set is larger than that of individual banks – the examiner could be leveraging information from other banks and borrowers to assess risk.

The OLS relations are as expected – in the cross-section, loans that are adversely-rated tend to be ones that further deteriorate and violate covenants. Given the absence of causal link between SNC ratings and loan deterioration, the OLS results can be interpreted as highlighting the expertise and informational advantage of SNC examiners in discovering distress even conditioning on a wealth of controls and the bank's internal rating.

4.5 Robustness Tests

We also present a different parametrization of the adverse rating. By grouping the "special mention" rating category with the rest of the "non-pass" ratings, we could be understating the effects of supervisory scrutiny on loan outcomes because "special mention loans" tend to still be of relatively high credit quality. According to classification guidelines, "pass" and "special mention" loans are given loan-loss reserves of 0%, while loan-loss reserve rates are 20%, 50%, and 100% for the loans rated "substandard", "doubtful", and "loss".[27] An alternative grouping is to classify "special mention" with "pass" ratings, and group "substandard", "doubtful", and "loss" into the "adverse" category; this grouping is also known as the

[25] Carey and Hrycay (2001) argue that banks have incentives to manipulate their internal ratings provided to regulators.

[26] Similarly, Nakamura and Roszbach (2013) use internal ratings of two leading banks in Sweden to understand monitoring ability. The authors find that even though banks' internal ratings contain valuable information not available to outside markets, banks' internal ratings do not incorporate some relevant public information on borrower credit quality that is available from a credit bureau. The study attributes these findings to over-confidence. Treacy and Carey (2000) argue that internal ratings can be improved with more accurate statistical models, and may contain biases due to institutional practices and culture.

[27] See https://www.federalreserve.gov/boarddocs/srletters/1990/sr9021.htm

"classified"/"non-classified" designation in the official supervisory guidelines. Our outcomes of interest are exactly the same as in the previous analysis augmenting the definition only of *Adverse Rating* and *Lead Rating*.

Table 8 presents the IV results with the augmented specifications. The estimates are significantly larger in magnitude than the ones we have documented previously. Once again, we find that supervisory rating downgrades lead to large reductions in future loan commitments. For example, credit line commitments decrease by approximately 35 percentage points, while total commitments declines by about 17 percentage points. Additionally, lead banks reduce exposure to borrowers by approximately 9 percentage points which represents 50% of the average lead share. Similar to our previous results, some of the loss in bank credit appears to be offset by institutional investors from the leveraged loan market as institutional term loans increase by about 16 percentage points, driving almost all of the increase in term loans. Overall, our results are consistent with increases in supervisory scrutiny of riskier loans imposing even higher costs on banks.

As an additional robustness, we also replicate our main results using two alternative definitions of the instrumental variable. Specifically, we estimate examiner leniency from all the examiner's lifetime cases or from the examiner's past cases in a rolling three-year window. In Table 9 we show that our main results are very similar using these two alternative instrumental variables. For example, higher supervisory scrutiny leads to about 19 percentage points reduction in credit line commitments and between 5 and 10 percentage point reduction in total commitments. Once again, we find that lead banks reduce their exposure to affected borrowers and that institutional term loan financing offsets part of the reduction in bank credit. These results suggest that the predictive power of examiner leniency is driven by the time-invariant component of leniency.

In a final set of specifications, we control for credit quality using the contemporaneous lead bank rating instead of the lagged lead bank rating. As discussed earlier, our preferred specifications use the lagged lead bank rating as lead banks update their ratings on sampled

loans immediately before the SNC exam and may have incentives to anticipate supervisory ratings. Thus, using the contemporaneous rating could induce high degree of collinearity between the lead bank and the SNC ratings. The results in Table 10 show that the IV estimates are qualitatively very similar to those in our main specifications. All estimates are now larger but also substantially noisier due to collinearity. For example, total commitments decrease by about 14 percentage points, driven by cuts in credit line commitments. Similar to our main results lead bank reduce exposure to affected borrowers and institutional term loans offset a part of the reduction in bank credit.

5 Concluding Remarks

We find that increasing the intensity of bank supervision has large causal effects on borrower credit availability – approximately 11 percentage points reduction in total syndicated credit. Our results show that this reduction is primarily coming from supervised banks; non-supervised institutional investors in the leveraged loan market increase financing to borrowers experiencing heightnd supervisory scrutiny. We also show that bilateral loans offset little of the decrease in syndicated credit and that borrower interest costs increase as a result of higher supervisory scrutiny. Additionally, our results imply that greater supervisory scrutiny may lead to weaker lending relationships as lead arrangers reduce their exposure to affected borrowers.

Banks respond to heightened supervisory scrutiny by updating their own internal risk metrics to match the adverse supervisory risk assessments and by performing additional monitoring activities. Our falsification test finds no causal effect of scrutiny, as varied by examiner leniency, on loan delinquency or covenant violations – lending further support to the notion that our leniency instrument is uncorrelated with underlying loan quality. In other words, otherwise identical loans assigned to stricter examiners are no more likely to become delinquent or violate financial covenants in the following year. Our results are also

robust to alternative measures of supervisory scrutiny, to the inclusion of contemporaneous lead bank credit ratings, as well as to alternative definitions of the instrumental variable.

While our study illustrates that supervisory scrutiny could have large and negative effects on the credit supply to borrowers, our results do not address whether these effects are welfare-increasing or decreasing. For example, if banks' internal risk estimates are biased or banks have insufficient incentives to manage their loan portfolio due to agency conflicts within banks or regulatory capital arbitrage (see, e.g., Treacy and Carey (2000), Carey and Hrycay (2001), Gutierrez-Mangas et al. (2015), Nakamura and Roszbach (2013), Granja and Leuz (2018)), then bank supervision could be pushing banks closer to the level of credit provisioning in line with credit risk. Indeed, a core function of banking oversight is to curtail risky lending that may increase the chance of bank failure. In this sense, banks actively reducing exposures, identified by the SNC Program as risky, is an intended consequence of supervision.

References

Adrian, Tobias and Song Shin. 2014. "Procyclical Leverage and Value-at-Risk." *Review of Financial Studies* 27 (2):373–403.

Agarwal, Sumit, David Lucca, Amit Seru, and Francesco Trebbi. 2014. "Inconsistent Regulators: Evidence from Banking." *Quarterly Journal of Economics*, Forthcoming.

Almeida, Heitor, Igor Cunha, Miguel A. Ferreira, and Felipe Restreppo. 2014. "The Real Effects of Credit Ratings: The Sovereign Ceiling Channel." Working Paper.

Berlin, Mitchell. 2015. "Disclosure of Stress Test Results." FRB of Philadelphia Working Paper.

Berlin, Mitchell, Gregory Nini, and Edison Yu. 2018. "Concentration of Control Rights in Leveraged Loan Syndicates." Working Paper.

Bidder, Rhys M., John R. Krainer, and Adam H. Shapiro. 2016. "Drilling into Bank Balance Sheets: Examining Portfolio Responses to an Oil Shock." Working Paper.

Bischof, Jannis and Holger Daske. 2013. "Mandatory Disclosure, Voluntary Disclosure, and Stock Market Liquidity: Evidence from the EU Bank Stress Tests." *Journal of Accounting Research* 51 (5):997–1029.

Bisetti, Emilio. 2017. "The Value of Regulators as Monitors: Evidence from Banking." Job Market Paper.

Bolton, Patrick, Xavier Freixas, and Joel Shapiro. 2012. "The Credit Ratings Game." *Journal of Finance* 67 (1):85–111.

Boot, Arnoud W.A. 2000. "Relationship Banking: What Do We Know?" *Journal of Financial Intermediation* 9:7–25.

Brun, Matthieu, Henri Fraisse, and David Thesmar. 2013. "The real effects of bank capital requirements." Banque de France Working paper.

Cantor, Richard and Frank Packer. 1996. "Determinants and Impact of Sovereign Credit Ratings." *FRBNY Economic Policy Review* :37–54.

Carey, Mark and Mark Hrycay. 2001. "Parameterizing credit risk models with rating data." *Journal of Banking and Finance* 24:197–270.

Chang, Tom and Antoinette Schoar. 2013. "Judge Specific Differences in Chapter 11 and Firm Outcomes." NBER Working Paper.

Dobbie, Will and Jae Song. 2015. "Debt Relief and Debtor Outcomes: Measuring the Effects of Consumer Bankruptcy Protection." *The American Economic Review* 105 (3):1272–1311.

Ellahie, Atif. 2013. "Capital Market Consequences of EU Bank Stress Tests." University of Utah Working Paper.

Faulkender, Michael and Mitchell Petersen. 2006. "Does the Source of Capital Affect Capital Structure?" *The Review of Financial Studies* 19 (1):45–79.

Gilson, Stuart C. and Jerold B. Warner. 1998. "Private Versus Public Debt: Evidence From Firms That Replace Bank Loans With Junk Bonds." Working Paper.

Glasserman, Paul and Gowtham Tangirala. 2015. "Are the Federal Reserve's Stress Test Results Predictable?" Office of Financial Research Working Paper Num: 15-02.

Goldstein, Itay and Haresh Sapra. 2013. "Should Banks' Stress Test Results be Disclosed? An Analysis of the Costs and Benefits." *Foundations and Trends in Finance* 8 (1):1–54.

Gopalan, Yadav, Ankit Kalda, and Asaf Manela. 2016. "Hub-and-Spoke Regulation and Bank Leverage." Working Paper.

Granja, Joao and Christian Leuz. 2018. "The Death of a Regulator: Strict Supervision, Bank Lending and Business Activity." NBER Working Paper No. 24168.

Griffin, John, Jordan Nickerson, and Dragon Tang. 2013. "Rating Shopping or Catering? An Examination of the Response to Competitive Pressure for CDO Credit Ratings." *The Review of Financial Studies* 26 (9):2270–2310.

Gutierrez-Mangas, Carlos, Ivan Ivanov, Mark Lueck, Shan Luo, and Joseph Nichols. 2015. "Banks' Internal Ratings and Borrower Financial Statement Information." FEDS Working Paper Num:.

Heckman, James. 1981. "The incidental parameter problem and the problem of initial conditions in estimating a discrete-time data stochastic process." *Structural Analysis of Discrete Data with Econometric Applications*, eds. Charles Manski and Daniel McFadden, MIT Press 1981.

Hirtle, Beverly, Anna Kovner, and Matthew Plosser. 2016. "The Impact of Supervision on Bank Performance." FRB of New York Staff Report No. 768.

Irani, Rustom, Rajkamal Iyer, Ralf Meisenzahl, and Jose-Luis Peydro. 2018. "The Rise of Shadow Banking: Evidence from Capital Regulation." Working Paper.

Ivanov, Ivan, Ben Ranish, and James Wang. 2017. "Bank Supervision and Syndicated Lending." Working Paper.

Jimenez, Gabriel, Steven Ongena, Jose-Luis Peydro, and Jesus Saurina. 2017. "Macroprudential Policy, Countercyclical Bank Capital Buffers, and Credit Supply: Evidence from the Spanish Dynamic Provisioning Experiments." *Journal of Political Economy* 125 (6):2126–2177.

Kandrac, John and Bernd Schlusche. 2019. "The Effect of Bank Supervision on Risk Taking: Evidence from a Natural Experiment." Working Paper.

Karam, Philippe D., Ourda Merrouche, Moez Souissi, and Rima Turk. 2014. "The Transmission of Liquidity Shocks: Evidence from Credit Rating Downgrades." CEPR Discussion Paper No. DP10252.

Kim, Sooji, Matthew C. Plosser, and Joao A.C. Santos. 2018. "Macroprudential policy and the revolving door of risk: Lessons from leveraged lending guidance." *Journal of Financial Intermediation* 34:17–31.

Kiser, Elizabeth K., Robin A. Prager, and Jason R. Scott. 2015. "Supervisory Ratings and Bank Lending to Small Businesses During the Financial Crisis and Great Recession." *Journal of Financial Services Research* :1–24.

Kisgen, Darren J. and Philip E. Strahan. 2010. "Do Regulations Based on Credit Ratings Affect a Firm's Cost of Capital?" *The Review of Financial Studies* 23 (12):4324–4347.

Kling, Jeffrey. 2006. "Incarceration Length, Employment, and Earnings." *The American Economic Review* 96 (3):863–876.

Lim, Ivan, Jens Hagendorff, and Seth Armitage. 2016. "Does Distance Impede Regulatory Monitoring? Evidence from the Banking Industry." Working Paper.

Maestas, Nicole, Kathleen Mullen, and Alexander Strand. 2013. "Does Disability Insurance Receipt Discourage Work? Using Examiner Assignment to Estimate Causal Effects of SSDI Receipt." *The American Economic Review* 103 (5):1797–829.

Morgan, Donald, Stavros Peristiani, and Vanessa Savino. 2014. "The Information Value of the Stress Tests." *Journal of Money, Credit and Banking* 46 (7):1479–1500.

Nakamura, Leonard and Kasper Roszbach. 2013. "Credit Ratings and Bank Monitoring Ability." FRB of Philadelphia Working Paper.

Peek, Joe and Eric Rosengren. 1995. "The capital crunch: Neither a borrower nor a lender be." *Journal of Money, Credit and Banking* 27:625–638.

Plosser, Matthew and João A.C. Santos. 2014. "Banks' Incentives and the Quality of Internal Risk Models." FRB of New York Staff Report No. 704.

Rezende, Marcelo and Jason Wu. 2013. "The Effects of Supervision on Bank Performance: Evidence from Discontinuous Examination Frequencies." Working Paper.

Roberts, Michael and Amir Sufi. 2009. "Renegotiation of financial contracts: Evidence from private credit agreements." *Journal of Financial Economics* 93 (2):159–184.

Sampat, Bhaven and Heidi L. Williams. 2015. "How do patents affect follow-on innovation? Evidence from the human genome." NBER Working Paper.

Skreta, Vasiliki and Laura Veldkamp. 2009. "Ratings shopping and asset complexity: A theory of ratings inflation." *Journal of Monetary Economics* 56 (5):678–695.

Sufi, Amir. 2009. "The Real Effects of Debt Certification: Evidence from the Introduction of Bank Loan Ratings." *The Review of Financial Studies* 22 (4):1659–1691.

Thakor, Anjan. 1996. "Capital requirements , monetary policy, and aggregate bank lending: Theory and empirical evidence." *Journal of Finance* 51:279–324.

Treacy, William and Mark Carey. 2000. "Credit risk rating systems at large US banks." *Journal of Banking and Finance* 24:167–201.

Appendix A - Variable Definitions

Committed Exposure is defined as the commitment amount of a given credit facility in millions of US dollars.

Utilized Exposure is defined as the outstanding drawn amount under a given line of credit in millions of US dollars.

Utilization is defined as the outstanding drawn amount divided by the total credit line commitment amount. This variable always takes the value of one for term loans (whenever credit lines are pooled with term loans in our OLS and IV specifications).

Loan Maturity is defined as the difference between the loan maturity date and origination date (in months) of a given credit facility.

Lead Share is the share of the credit facility amount that is held by the lead bank on the syndicate. The lead bank is defined at the parent company level.

Foreign Bank Share is the share of the credit facility amount that is held by foreign banks.

$Non-bank\ Share$ is the share of the credit facility amount that is held by non-bank investors.

Public is an indicator variable that takes the value of one whenever the borrower is a public company, and zero elsewhere.

Credit Line is an indicator variable that takes the value of one if the credit facility is a line of credit, and zero elsewhere.

Term Loan is an indicator variable that takes the value of one if the credit facility is a term loan, and zero elsewhere.

$Inst.\ Term\ Loans_{-i,t+1}$ is defined as the total amount of institutional term loans of a given borrower in year $t+1$ excluding credit facility i and divided by the total commitment amount to the same borrower in year t.

$Inst.\ Term\ Loans_{i,t+1}$ is defined as the total amount of institutional term loans of the borrower of loan i in year $t+1$, divided by the total commitment amount to the same bor-

rower in year t.

Lead Rating takes the value of 1 whenever a credit facility is rated 'non-pass' by the lead bank, and 0 otherwise. While there are ratings between 0 and 1, they are rare; whenever split cases occur we round them to the nearest integer value (0 or 1). 'Non-pass' ratings includes the supervisory categories of 'special mention', 'substandard', 'doubtful', and 'loss'.

Voter Rating takes the value of 1 whenever a credit facility is rated 'non-pass' by the SNC program, and 0 otherwise. Similar to the lead bank ratings even though there are ratings between 0 and 1, they are rare; whenever split cases occur we round them to the nearest integer value (0 or 1).

Held for Investment is an indicator variable that takes the value of one whenever the lead bank indicates that the credit facility is held as an investment asset (as compared to a held-for-sale asset), and zero elsewhere.

Nonaccrual is an indicator variable that takes the value of one whenever the lead bank indicates that the credit facility is in non-accrual status, and zero elsewhere.

Loan Exit$_{it+1}$ is an indicator variable that takes the value of one if a credit facility is not observed in the SNC database in the year following a SNC exam year (year $t+1$), and zero elsewhere. Loan exit could be attributed to the loan maturing, being charged off, or renegotiated outside of the lender's portfolio.

Δ *Committed Amount*$_{it+1}$ is defined as the percent change in credit facility committed amount from year t to year $t+1$; this variable is only defined for credit facilities that survive between year t and year $t+1$.

Δ *Utilized Amt*$_{it+1}$ is defined as the change in credit facility outstanding drawn amount from year t to year $t+1$ divided by the credit facility commitment amount as of year t; this variable is only defined whenever the credit facility is a line of credit and for credit facilities that survive between year t and year $t+1$.

Maturity$_{it+1}$ is defined as the difference between the maturity date and the origination date of credit facility i in year $t+1$ (in months); this variable is only defined for credit

facilities that survive between year t and year $t+1$.

Credit Lines$_{-i,t+1}$ is defined as total credit line commitment amounts to a given borrower in year $t+1$ excluding credit facility i, divided by total commitments of the same borrower in year t.

Credit Lines$_{i,t+1}$ is defined as total credit line commitment amounts to the borrower of credit facility i in year $t+1$, divided by total commitments of the same borrower in year t.

Term Loans$_{-i,t+1}$ is defined as total term loan amounts to a given borrower in year $t+1$ excluding credit facility i, divided by total commitments of the same borrower in year t.

Term Loans$_{i,t+1}$ is defined as total term loan amounts to the borrower of credit facility i in year $t+1$, divided by total commitments of the same borrower in year t.

Total Commitments$_{i,t+1}$ is defined as the total syndicated commitment amounts (credit lines, term loans, and other loans combined) to the borrower of credit facility i in year $t+1$ divided by the total commitment amount to the same borrower in year t.

All Commitments$_{i,t+1}$ is defined as the total commitment amounts (both bilateral and syndicated) to the borrower of credit facility i in year $t+1$, divided by the total commitment amount to the same borrower in year t. This variable is constructed using Y-14 data.

Interest Rate$_{i,t+1}$ is defined as the weighted average interest rate on all commitments (both bilateral and syndicated) to the borrower of credit facility i in year $t+1$. The weighted average is computed by using the commitment amounts of different credit facilities of a given borrower as weights. This variable is constructed using Y-14 data.

Lead Bank Exposure$_{-i,t+1}$ is defined as the total commitment amounts of lead banks to a given borrower in year $t+1$ excluding the lead lead bank exposure to credit facility i, divided by total commitments of the same borrower in year t.

Lead Bank Exposure$_{i,t+1}$ is defined as the total commitment amounts of lead banks to the borrower of credit facility i in year $t+1$, divided by total commitments of the same borrower in year t.

NonBank Financing$_{-i,t+1}$ is defined as the total commitment amounts of non-banks to

a given borrower in year $t+1$ excluding non-bank exposure to credit facility i, divided by total commitments of the same borrower in year t.

$NonBank\ Financing_{i,t+1}$ is defined as the total commitment amounts of non-banks to the borrower of credit facility i in year $t+1$, divided by total commitments of the same borrower in year t.

$Bank\ Participant\ Exposure_{i,t+1}$ is defined as the total commitment amounts of non-lead bank syndicate participants to the borrower of credit facility i in year $t+1$, divided by total commitments of the same borrower in year t.

$Terminate\ Lead\ Relationship_{i,t+1}$ takes the value of one whenever the borrower corresponding to loan i terminates the relationship with their lead bank in year $t+1$, and zero otherwise.

$Default_{it+1}$ takes the value of one whenever a credit facility i is more than 90 days delinquent in year $t+1$, and zero otherwise. Loan delinquency status is only available for the 2009-2017 period.

$Active\ Monitoring_{i,t+1}$ takes the value of one whenever a credit facility i is actively monitored by the lead bank in year $t+1$ and zero otherwise. Active monitoring is defined as the type of monitoring likely to be associated with substantial costs – borrower meetings, site visits, or hiring third-party appraisers.

$Covenant\ Violation_{i,t+1}$ takes the value of one whenever a covenant in credit facility i is breached in year $t+1$, and zero otherwise. This variable requires the credit facility to be reviewed again in the following year. If the credit facility is not selected to be sampled again, then the violation flags are set to missing.

$Lead\ Rating_{-i,t+1}$ is defined as the average of the lead bank ratings of all other credit facilities of a given borrower at time $t+1$ with the exception of credit facility i.

$PD\ Estimate_{i,t+1}$ is defined as the average probability of default estimate assigned to the borrower of loan i at time $t+1$ by its bank lenders. The average is computed across all lenders to a given borrower that report loan-level Basel risk metrics.

EL Estimate$_{i,t+1}$ is defined as the average expected loss estimate assigned to the borrower of loan i at time $t+1$ by its bank lenders. The average is computed across all lenders to a given borrower that report loan-level Basel risk metrics.

Lead Bank FE: these are indicators for the different lead banks in our sample defined by the bank parent company RSSD ID.

Borrower Industry FE: these are indicators for industry groups defined in terms of the 2-digit NAICS code corresponding to each borrower. Borrowers with 2-digit NAICS codes of 31, 32, and 33 are classified as "Manufacturing"; 42 is classified as "Wholesale Trade"; 44 and 45 as "Retail Trade"; 48 and 49 as "Transportation"; 22 as 'Utilities"; 11 as "Agriculture; 21 as "Mining & Extraction"; 51 as "Information"; 53 as "Real Estate"; 54, 55, and 56 as "Business Services"; 61 and 62 as "Education & Health"; 71 as "Leisure"; 23 as "Construction"; 72 as "Accommodation & Food"; the remaining NAICS codes are classified in the "Other" group.

Federal Supervisory District FE: these are indicators for the supervisory district of the primary Federal regulator. The Federal Reserve has the following districts: Federal Reserve Banks of Atlanta, Boston, Chicago, Cleveland, Dallas, Kansas City, Minneapolis, New York, Philadelphia, Richmond, San Francisco, and St. Louis; The FDIC has the following districts: Atlanta, Chicago, Dallas, Kansas City, New York, and San Francisco; The OCC has the following districts: Central, Northeastern, Southern, Western; The OTS which has been rolled into the OCC in 2010 has a similar structure in terms of districts: Central, Northeast, Southeast, Western (only a tiny fraction of loans fall under the jurisdiction of the OTS during our sample period – 0.20%).

Year FE: these are indicators for the year of each loan observation.

Origination Year FE: these are indicators for the origination year of each loan.

Collateral Type FE: these are indicators for the type of collateral of each credit facility i (physical assets, financial assets, real estate, unsecured, other).

Covenant Type FE: these are indicators for the type of financial covenants in each credit

facility i (Capital Expenditures, Cash Flow Leverage, Net Worth, Debt to Assets (Loan to Value), Cash, Current Ratio, Interest Coverage, Debt to Capitalization, Distributions).

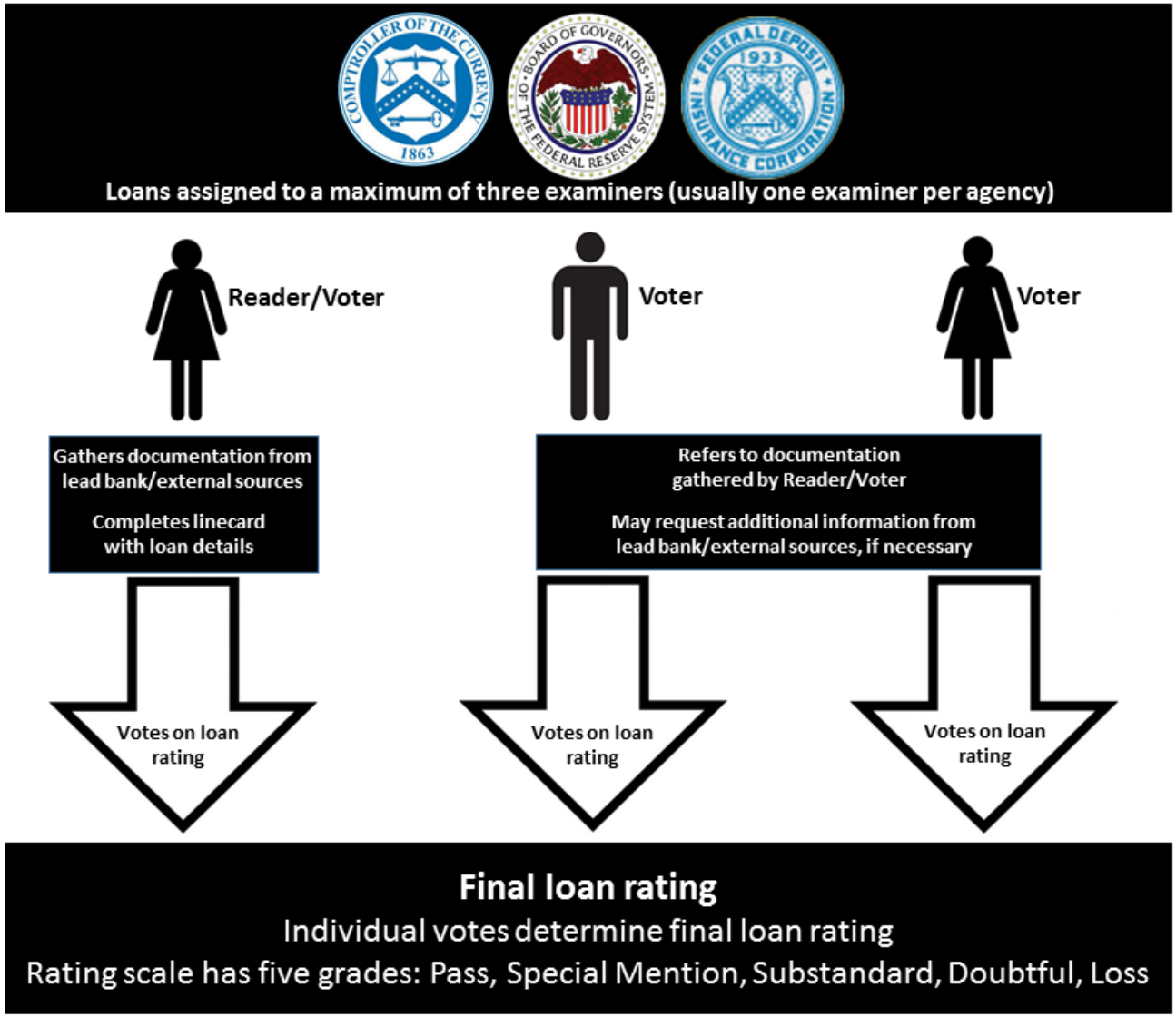

Figure 1: The SNC Review Process. This figure depicts the SNC Review process following the assignment of the first examiner to a syndicated loan.

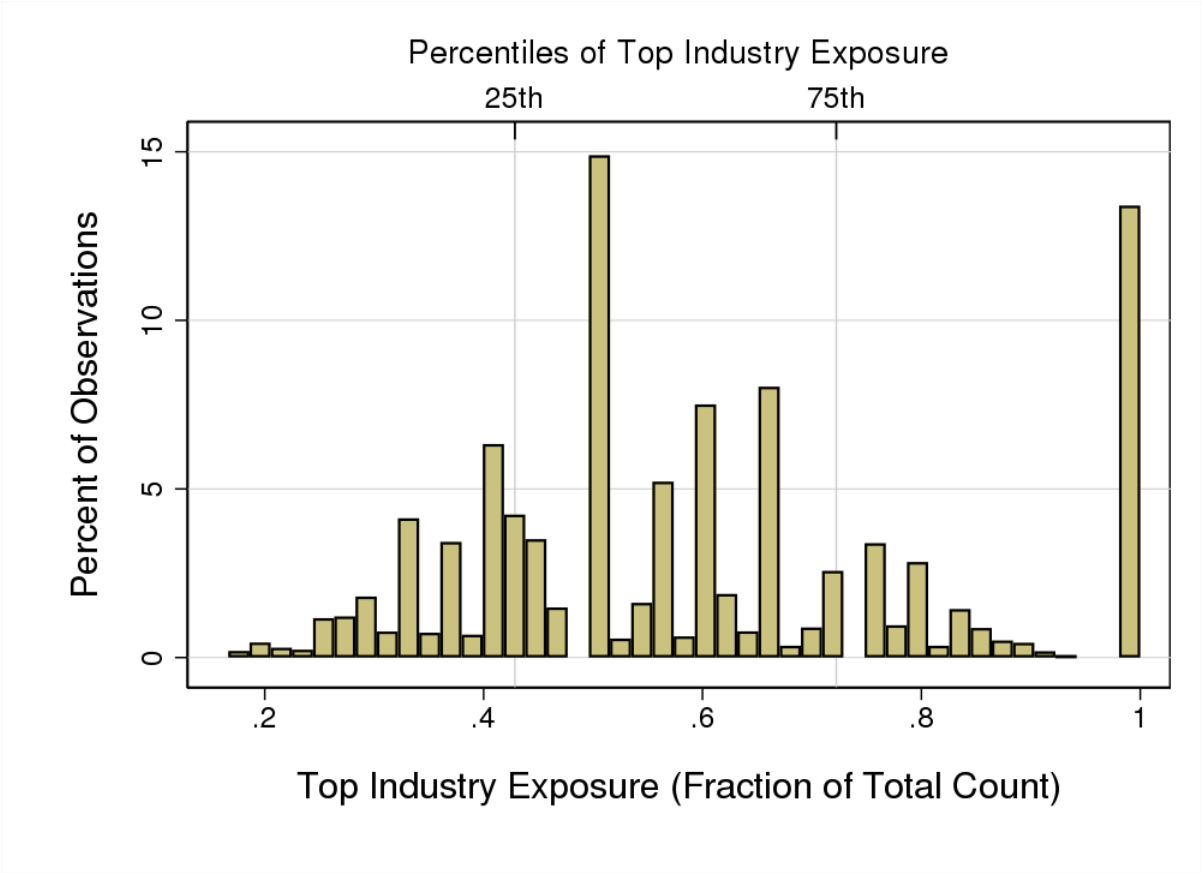

Figure 2: Examiner Specialization. This figure plots a histogram of the fraction of loans (in terms of loan count) for each examiner-year that fall in the most frequently examined Census industry for that examiner-year.

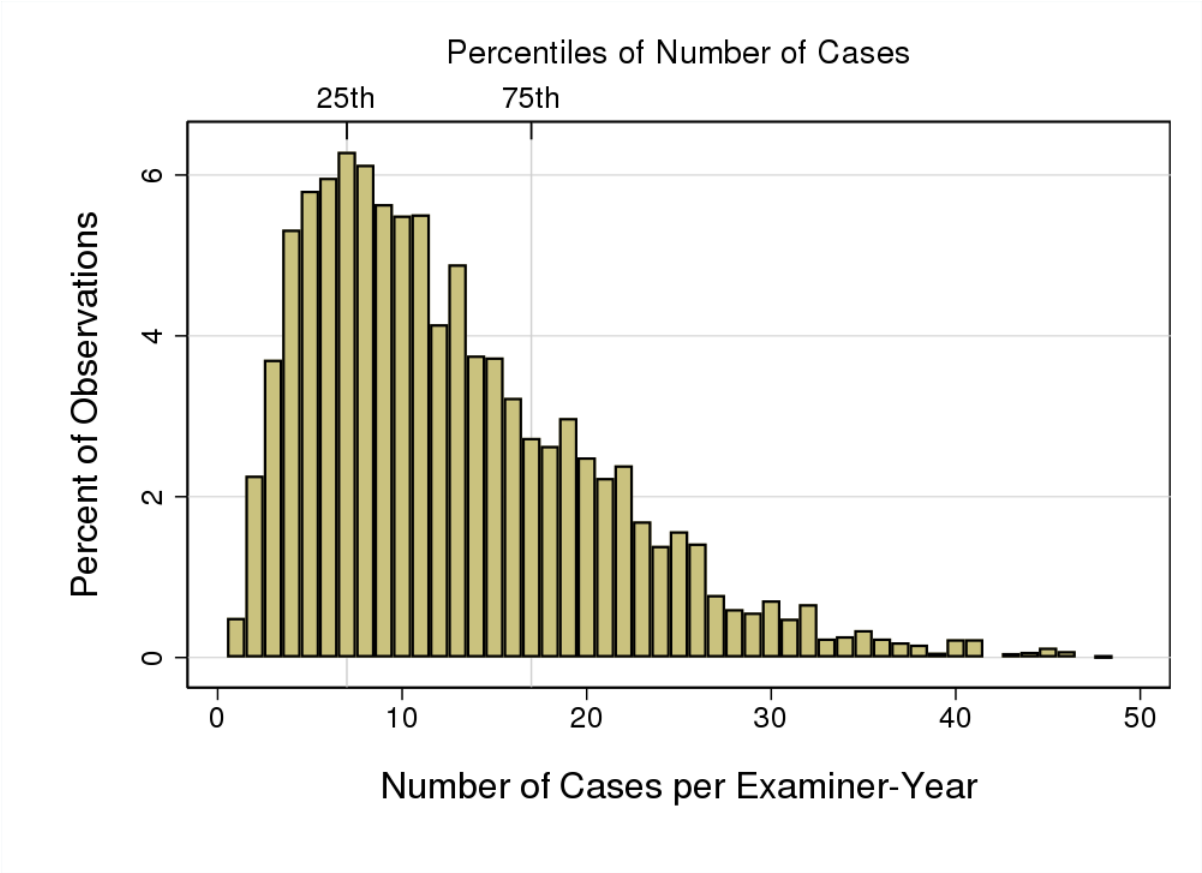

Figure 3: Examiner Caseload. This figure plots a histogram of the number of cases per examiner-year for the loans in our sample. The 25^{th} percentile of caseload is 7 loans, meaning 25 percent of loans had examiners with 7 or fewer assigned loans in a given exam year.

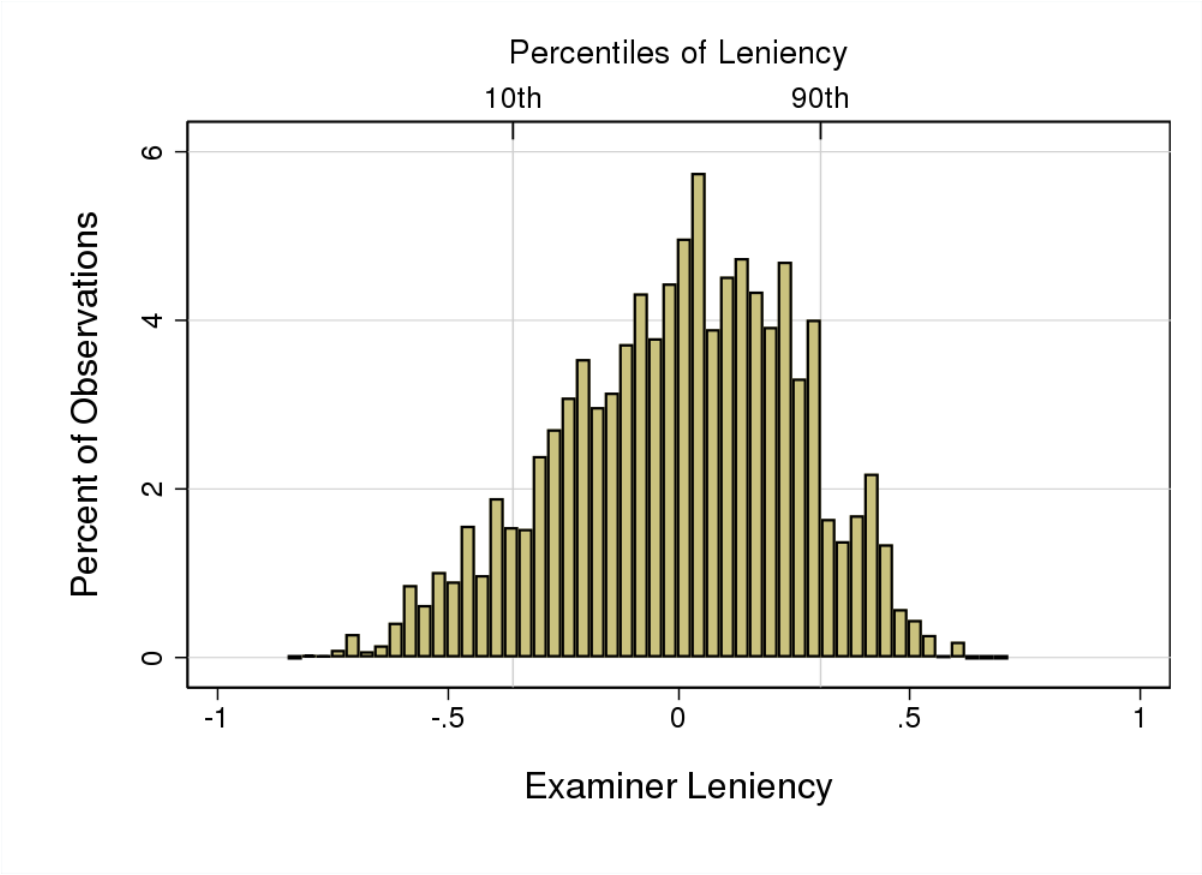

Figure 4: The Leniency of the First Examiners. This figure plots a histogram of the examiner rating propensities for the loans in our sample, $Leniency_{-ijt}$, falling within the [-1,1] interval. $Leniency_{-ijt}$, is calculated as the average of all votes of a given first examiner j (the examiner's vote is equal to 1 if the rating is pass, and 0 for non-pass) in a given year t, excluding loan i. The measure is only computed whenever the examiner has at least 5 votes in a given year. Finally, we subtract the average leniency of all examiners in a given Federal supervisory district in that year.

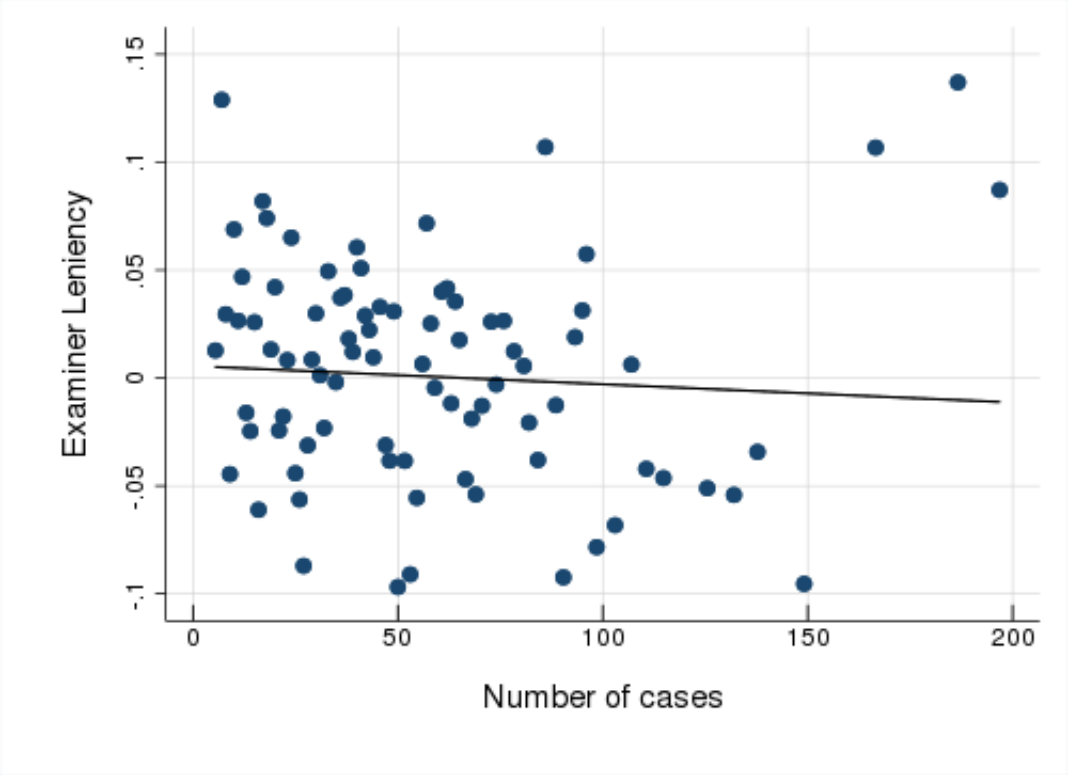

Figure 5: Examiner Leniency and Experience. The top plot shows the relation between our measure of first examiner leniency and experience measured by the number of total cases between 2007 and 2016. The bottom plot shows the same relation but between our second measure of examiner leniency and the total number of lifetime cases.

Table 1: Summary Statistics: Comparison. This table presents summary statistics (mean, median, and standard deviation) for some of the key loan characteristics used in our analysis, split by loan type – lines of credit, term loans, and other loans. The summary statistics presented here pertain to loans that have been sampled and that have available information for all loan and borrower characteristics. All variables are defined as in Appendix A.

	Mean	*Median*	*St.Dev*
***Credit Lines**, N = 9,230*			
Committed Exposure	274	108	481
Utilized Exposure	96	25	228
Utilization	0.385	0.309	0.356
Loan Maturity	62	60	22
Voter Rating	0.345	0.000	0.475
Lead Rating	0.356	0.000	0.479
Lead Share	0.222	0.200	0.169
Foreign Bank Share	0.346	0.320	0.260
$Non-Bank\ Share$	0.116	0.000	0.184
Public	0.475	0.000	0.499
Held for Investment	0.871	1.000	0.335
Nonaccrual	0.039	0.000	0.195
***Term Loans**, N = 8,470*			
Committed Exposure	421	191	736
Loan Maturity	72	72	25
Voter Rating	0.425	0.000	0.494
Lead Rating	0.421	0.000	0.494
Lead Share	0.122	0.038	0.165
Foreign Bank Share	0.210	0.100	0.254
$Non-Bank\ Share$	0.494	0.583	0.383
Public	0.450	0.000	0.498
Held for Investment	0.666	1.000	0.472
Nonaccrual	0.064	0.000	0.245
***Other Loans**, N = 908*			
Committed Exposure	191	75	562
Loan Maturity	53	48	27
Voter Rating	0.459	0.000	0.498
Lead Rating	0.429	0.000	0.494
Lead Share	0.267	0.250	0.212
Foreign Bank Share	0.277	0.183	0.302
$Non-Bank\ Share$	0.183	0.000	0.297
Public	0.241	0.000	0.428
Held for Investment	0.817	1.000	0.387
Nonaccrual	0.091	0.000	0.288

Table 2: Supervisory Ratings and the First Examiner's Leniency. This table contains OLS coefficient estimates of the association between SNC ratings and the leniency of the first examiner, *Examiner Leniency*$_{-ijt}$, defined as the average rating of all votes of the first examiner j in year t excluding loan i, minus the corresponding average in the corresponding regulatory district in year t. The SEs in the OLS and IV specifications are double clustered at the borrower and industry X year level. See Appendix A for additional variable definitions.

	SNC Rating$_{it}$					
	(1)	(2)	(3)	(4)	(5)	(6)
Examiner Leniency	-0.6663***	-0.5301***	-0.4217***	-0.4139***	-0.4095***	-0.4087***
	(0.0220)	(0.0215)	(0.0193)	(0.0193)	(0.0193)	(0.0192)
Lead Rating$_{i,t-1}$			0.3264***	0.3221***	0.3183***	0.3175***
			(0.0175)	(0.0173)	(0.0173)	(0.0173)
Utilization Ratio$_{i,t}$			0.1324***	0.1353***	0.1313***	0.1300***
			(0.0145)	(0.0143)	(0.0142)	(0.0142)
Lead Share$_{i,t}$			0.1242***	0.1098***	0.0951***	0.0932***
			(0.0277)	(0.0276)	(0.0281)	(0.0283)
NonBank Share$_{i,t}$			0.2187***	0.2102***	0.2034***	0.2047***
			(0.0255)	(0.0252)	(0.0260)	(0.0260)
Foreign Bank Share$_{i,t}$			0.0652***	0.0599**	0.0641***	0.0648***
			(0.0244)	(0.0239)	(0.0240)	(0.0240)
Public$_{i,t}$			0.0022	0.0030	0.0095	0.0104
			(0.0131)	(0.0131)	(0.0131)	(0.0131)
Held for investment$_{i,t}$			-0.0073	-0.0077	-0.0083	-0.0080
			(0.0132)	(0.0132)	(0.0132)	(0.0133)
Nonaccrual$_{i,t}$			0.3000***	0.2931***	0.2919***	0.2914***
			(0.0187)	(0.0184)	(0.0183)	(0.0183)
Active Monitoring$_{i,t}$						0.0327*
						(0.0169)
District X Year FE		X	X	X	X	X
Industry X Year FE		X	X	X	X	X
Lead Bank FE		X	X	X	X	X
Review Location FE		X	X	X	X	X
Origination Year FE		X	X	X	X	X
Loan Type FE			X	X	X	X
Loan Amt & Mat Splines			X	X	X	X
Covenant Type FE				X	X	X
Collateral Type FE					X	X
Observations	18,608	18,608	18,608	18,608	18,608	18,608
Adjusted R-squared	0.1223	0.2628	0.3850	0.3889	0.3920	0.3923

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 3: Supervisory Scrutiny and Changes in Credit Commitments. This table contains means (column 1), estimated coefficients of OLS (column 2) and IV regressions (column 3) of loan outcomes on SNC ratings, and controls. The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of *Examiner Leniency*$_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. In column 3, we instrument for the final SNC rating with the first examiner's leniency *Examiner Leniency*$_{-ijt}$, defined as the average rating of all votes of the first examiner j in year t excluding loan i, minus the corresponding average in the relevant regulatory district in year t. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	OLS	IV	
		Panel A: Lines of Credit		
ΔCommitted Amount$_{it+1}$	−0.0085	−0.0883***	−0.1179***	6,333
	(0.2232)	(0.0088)	(0.0242)	
ΔUtilized Amount$_{it+1}$	0.0096	0.0050	−0.0098	6,333
	(0.2912)	(0.0109)	(0.0385)	
Maturity$_{it+1}$	65.2877	−0.7086	4.5256*	6,333
	(24.0433)	(0.8162)	(2.3712)	
Loan Exit$_{it+1}$	0.3117	−0.0260**	0.0589	9,230
	(0.4632)	(0.0105)	(0.0498)	
		Panel B: Term Loans		
ΔCommitted Amount$_{it+1}$	−0.0635	−0.0267***	−0.0120	5,257
	(0.2123)	(0.0089)	(0.0488)	
Maturity$_{it+1}$	74.6266	−0.0397	1.3979	5,257
	(25.4728)	(0.5822)	(1.7687)	
Loan Exit$_{it+1}$	0.3778	−0.0426**	0.0419	8,470
	(0.4849)	(0.0184)	(0.0717)	

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 4: Supervisory Scrutiny and Borrower Credit Availability. This table contains means (column 1), estimated coefficients of OLS (column 2) and IV regressions (column 3) of loan and borrower outcomes on SNC ratings, and controls. The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of *Examiner Leniency*$_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. In column 3, we instrument for the final SNC rating with the first examiner's leniency *Examiner Leniency*$_{-ijt}$, defined as the average rating of all votes of the first examiner j in year t excluding loan i, minus the corresponding average in the relevant regulatory district in year t. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	OLS	IV	
Credit Lines$_{-i,t+1}$	0.1394	−0.0432***	−0.0974***	12,186
	(0.2315)	(0.0093)	(0.0269)	
Credit Lines$_{i,t+1}$	0.3998	−0.0792***	−0.2237***	12,186
	(0.2315)	(0.0142)	(0.0446)	
Term Loans$_{-i,t+1}$	0.3209	−0.0006	0.1295***	12,186
	(0.3749)	(0.0104)	(0.0390)	
Term Loans$_{i,t+1}$	0.5432	0.0104	0.1031**	12,186
	(0.4160)	(0.0138)	(0.0472)	
Total Commitments$_{i,t+1}$	0.9919	−0.0773***	−0.1081***	12,186
	(0.3042)	(0.0104)	(0.0373)	

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 5: Supervisory Scrutiny and Syndicate Composition. This table contains means (column 1), estimated coefficients of OLS (column 2) and IV regressions (column 3) of borrower syndicate composition on SNC ratings, and controls. The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of *Examiner Leniency*$_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. In column 3, we instrument for the final SNC rating with the first examiner's leniency *Examiner Leniency*$_{-ijt}$, defined as the average rating of all votes of the first examiner j in year t excluding loan i, minus the corresponding average in the relevant regulatory district in year t. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	OLS	IV	
Lead Bank Exposure$_{-i,t+1}$	0.0549	−0.0108***	−0.0269***	12,186
	(0.0913)	(0.0028)	(0.0101)	
Lead Bank Exposure$_{i,t+1}$	0.1500	−0.0199***	−0.0592***	12,186
	(0.1581)	(0.0043)	(0.0158)	
NonBank Financing$_{-i,t+1}$	0.2164	0.0238**	0.1797***	12,186
	(0.2958)	(0.0093)	(0.0420)	
Inst. Term Loans$_{-i,t+1}$	0.0530	0.0210***	0.0744***	12,186
	(0.1691)	(0.0054)	(0.0184)	
NonBank Financing$_{i,t+1}$	0.3474	0.0317***	0.1497***	12,186
	(0.3497)	(0.0116)	(0.0484)	
Inst. Term Loans$_{i,t+1}$	0.0798	0.0315***	0.1009***	12,186
	(0.2175)	(0.0081)	(0.0266)	
Bank Participant Exposure$_{i,t+1}$	0.4883	−0.0904***	−0.2030***	12,186
	(0.3142)	(0.0124)	(0.0374)	

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 6: Supervisory Scrutiny and Borrower Credit: Heterogeneity. This table contains means (column 1), estimated coefficients of OLS (column 2) and IV regressions (column 3) of borrower credit and syndicate composition on SNC ratings, and controls. The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of *Examiner Leniency*$_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. In column 3, we instrument for the final SNC rating with the first examiner's leniency *Examiner Leniency*$_{-ijt}$, defined as the average rating of all votes of the first examiner j in year t excluding loan i, minus the corresponding average in the relevant regulatory district in year t. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	OLS	IV	
Panel A: Small Firms				
Total Commitments$_{i,t+1}$	0.9938	−0.0976***	−0.2281*	3,026
	(0.3262)	(0.0282)	(0.1212)	
NonBank Financing$_{-i,t+1}$	0.1047	0.0076	0.0103	3,026
	(0.2066)	(0.0088)	(0.0490)	
Inst. Term Loans$_{i,t+1}$	0.0281	0.0107	0.0596	3,026
	(0.1199)	(0.0078)	(0.0394)	
Terminate Lead Relationship$_{i,t+1}$	0.0523	0.0039	0.1428*	3,026
	(0.2226)	(0.0123)	(0.0770)	
Panel B: Large Firms				
Total Commitments$_{i,t+1}$	0.9913	−0.0722***	−0.0900**	9,122
	(0.2971)	(0.0114)	(0.0405)	
NonBank Financing$_{-i,t+1}$	0.4283	0.0344***	0.1682***	9,122
	(0.3502)	(0.0128)	(0.0433)	
Inst. Term Loans$_{i,t+1}$	0.0970	0.0333***	0.0933***	9,122
	(0.2388)	(0.0106)	(0.0264)	
Terminate Lead Relationship$_{i,t+1}$	0.0814	0.0024	0.0251	9,122
	(0.2734)	(0.0113)	(0.0580)	
Panel C: Total Lending (bilateral & syndicated)				
All Commitments$_{i,t+1}$	1.1458	−0.1995***	−0.2644*	6,758
	(0.6212)	(0.0355)	(0.1578)	
Interest Rate$_{i,t+1}$	0.0384	0.0090***	0.0144***	6,628
	(0.0152)	(0.0008)	(0.0043)	

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 7: Supervisory Scrutiny and Lender Risk Management. This table contains means (column 1), estimated coefficients of OLS (column 2) and IV regressions (column 3) of loan- and borrower-level lender risk management metrics on SNC ratings, and controls. The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of $Examiner\ Leniency_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. In column 3, we instrument for the final SNC rating with the first examiner's leniency $Examiner\ Leniency_{-ijt}$, defined as the average rating of all votes of the first examiner j in year t excluding loan i, minus the corresponding average in the relevant regulatory district in year t. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	OLS	IV	
$Lead\ Rating_{i,t+1}$	0.3745	0.7285***	0.8339***	12,186
	(0.4840)	(0.0207)	(0.0484)	
$Lead\ Rating_{-i,t+1}$	0.3813	0.7026***	0.8267***	9,203
	(0.4796)	(0.0255)	(0.0422)	
$PD\ Estimate_{i,t+1}$	0.0424	0.0517***	0.0586**	4,156
	(0.0595)	(0.0082)	(0.0217)	
$EL\ Estimate_{i,t+1}$	0.0124	0.0168***	0.0184**	4,101
	(0.0202)	(0.0031)	(0.0072)	
$Active\ Monitoring_{i,t+1}$	0.2220	0.0237	0.1579**	4,334
	(0.4156)	(0.0186)	(0.0791)	
$Default_{i,t+1}$	0.0074	0.0110***	0.0086	7,295
	(0.0857)	(0.0038)	(0.0185)	
$Covenant\ Violation_{i,t+1}$	0.1048	0.0841***	0.0327	6,352
	(0.3063)	(0.0150)	(0.0512)	

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 8: Alternative Measure of Supervisory Scrutiny. This table contains means (column 1), estimated coefficients of OLS (column 2) and IV regressions (column 3) of changes in borrower credit outcomes on SNC ratings, and controls. The only change from Table 3 is that SNC ratings are defined as adverse if they fall in the bottom three regulatory rating groups: "substandard", "doubtful", and "loss"; lead bank ratings are defined similarly. The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of $Examiner\ Leniency_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. In column 3, we instrument for the final SNC rating with the first examiner's leniency $Examiner\ Leniency_{-ijt}$, defined as the average rating of all votes of the first examiner j in year t excluding loan i, minus the corresponding average in the relevant regulatory district in year t. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	OLS	IV	
Credit Lines$_{i,t+1}$	0.3998	-0.0850^{***}	-0.3515^{***}	12,186
	(0.4035)	(0.0137)	(0.0750)	
Term Loans$_{i,t+1}$	0.5432	0.0190	0.1716^{**}	12,186
	(0.4160)	(0.0128)	(0.0786)	
Total Commitments$_{i,t+1}$	0.9919	-0.0807^{***}	-0.1672^{***}	12,186
	(0.3042)	(0.0120)	(0.0597)	
Lead Bank Exposure$_{i,t+1}$	0.1500	-0.0183^{***}	-0.0930^{***}	12,186
	(0.1581)	(0.0045)	(0.0254)	
NonBank Financing$_{i,t+1}$	0.3474	0.0235^{**}	0.2418^{***}	12,186
	(0.397)	(0.0106)	(0.0771)	
Inst. Term Loans$_{i,t+1}$	0.0798	0.0163^{**}	0.1579^{***}	12,186
	(0.2175)	(0.0070)	(0.0476)	

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

Table 9: Alternative Instrumental Variable. This table contains means (column 1), estimated IV coefficients of SNC ratings using a measure of leniency using the entire history of a given examiner's votes (column 2), and SNC rating IV estimates using a measure of leniency based on a three-year rolling window of a given examiner's past votes (column 3). The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of $Examiner\ Leniency_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	IV2	IV3	
Credit Lines$_{i,t+1}$	0.3998	−0.1945**	−0.1956***	12,186
	(0.4035)	(0.0793)	(0.0505)	
Term Loans$_{i,t+1}$	0.5432	0.1587**	0.0952*	12,186
	(0.4160)	(0.0613)	(0.0504)	
Total Commitments$_{i,t+1}$	0.9919	−0.0577	−0.0968**	12,186
	(0.3042)	(0.0602)	(0.0437)	
Lead Bank Exposure$_{i,t+1}$	0.1500	−0.0521**	−0.0478**	12,186
	(0.1581)	(0.0245)	(0.0188)	
NonBank Financing$_{i,t+1}$	0.3474	0.1612***	0.1202**	12,186
	(0.3497)	(0.0558)	(0.0476)	
Inst. Term Loans$_{i,t+1}$	0.0798	0.1149**	0.0843***	12,186
	(0.2175)	(0.0533)	(0.0301)	

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

Table 10: Accounting for Contemporaneous Lead Rating. This table contains means (column 1), estimated coefficients of OLS (column 2) and IV regressions (column 3) of borrower credit outcomes on SNC ratings, and controls. The only change relative to Table 2 through 7 is that we include the contemporaneous lead rating, $Lead\ Rating_{i,t}$, throughout instead of the lagged lead rating, $Lead\ Rating_{i,t-1}$. The coefficients of the control variables are suppressed and all regressions include all variables and fixed effects as in the first stage equation in column (6) of Table 2 with the exception of $Examiner\ Leniency_{-ijt}$. Standard deviations (column 1) and standard errors (columns 2 and 3) are reported below the point estimates. In column 3, we instrument for the final SNC rating with the first examiner's leniency, $Examiner\ Leniency_{-ijt}$, defined as the average rating of all votes of the first examiner j over the entire sample period from 2007 through 2017 excluding loan i, minus the corresponding average in the relevant regulatory district in year t. All controls are as of time t. The SEs in the OLS and IV specifications are double-clustered at the borrower and industry X year level. See Appendix A for variable definitions.

	Mean	OLS	IV	
Credit Lines$_{i,t+1}$	0.3998	−0.0622***	−0.4782***	12,186
	(0.4035)	(0.0177)	(0.1261)	
Term Loans$_{i,t+1}$	0.5432	0.0031	0.2757*	12,186
	(0.4160)	(0.0192)	(0.1430)	
Total Commitments$_{i,t+1}$	0.9919	−0.0596***	−0.1436	12,186
	(0.3042)	(0.0141)	(0.1114)	
Lead Bank Exposure$_{i,t+1}$	0.1500	−0.0182***	−0.1316***	12,186
	(0.1581)	(0.0059)	(0.0447)	
NonBank Financing$_{i,t+1}$	0.3474	0.0182	0.3624**	12,186
	(0.3497)	(0.0136)	(0.1472)	
Inst. Term Loans$_{i,t+1}$	0.0798	0.0427***	0.2417***	12,186
	(0.2175)	(0.0100)	(0.0770)	

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$