Enforcement Actions and Bank Loan Contracting

By Raluca A. Roman

Enforcement actions against banks and their management officials, directors, and employees are important supervisory instruments. Regulators issue enforcement actions for violations of laws, rules, or regulations; breaches of fiduciary duty; and unsafe or unsound banking practices. In many cases, enforcement actions provide borrowers with new information about a bank's health, its banking practices, or its treatment of customers that may be difficult to infer from other disclosures.

But enforcement actions can be costly for banks. Affected banks spend resources to correct the problems that enforcement actions identify and are sometimes required to pay fines or make payments to aggrieved parties. In addition, because enforcement actions are publicly announced, they may carry potentially severe reputational costs. These actions can create uncertainty about a disciplined bank's condition or future prospects and, in turn, reduce the demand for credit from the bank. In response, some disciplined banks may offer borrowers lower loan rates and more generous contract terms to compensate for the uncertainty and credibility loss and thereby avoid losing their customers. Alternatively, other disciplined banks may attempt to reduce risk by offering borrowers loans with a higher interest rate and more stringent terms.

Raluca A. Roman is an economist at the Federal Reserve Bank of Kansas City. This article is on the bank's website at www.KansasCityFed.org

In this article, I investigate the effects of enforcement actions on bank loan contracting. My results using loan-level data and multidimensional information on loan contracts have significant implications for disciplined banks. They suggest that loans initiated after enforcement actions have statistically and economically significantly lower interest rates than loans initiated before enforcement actions. The decreases in interest rates are significant for enforcement actions issued against both banks and management officials and are slightly more pronounced for severe enforcement actions.

The results also suggest that other, non-price loan terms—particularly maturity and covenant intensity—become more favorable for borrowers after an enforcement action. In addition, the loan structure changes after enforcement actions: the number of lenders in syndicated loans increases, while transaction fees charged to borrowers decrease. These results are consistent with reduced demand from borrowers leading banks to offer more favorable loan contract terms. Thus, formal enforcement actions may reduce income and increase costs significantly for disciplined banks.

Section I reviews the institutional background on enforcement actions and develops the hypotheses to be tested regarding the relationship between enforcement actions and the cost of bank loans. Section II describes the data and the determinants of the cost of bank loans. Section III conducts an econometric analysis of the relationship between enforcement actions and the cost of bank loans after controlling for other factors. Section III also examines the effects of enforcement actions on other loan contract terms and syndicated lender structure.

I.   Regulatory Agencies and Enforcement Actions in the U.S. Banking System

During the 2008 financial crisis, many financial institutions questioned each other's financial liquidity and solvency, causing financial markets to seize up. The crisis highlighted serious regulatory compliance and safety-and-soundness issues at many banks. A recent research report by Srinivas and others shows that the number of regulatory enforcement actions escalated from 500 and 600 per year in the pre-crisis period to 906 in 2008, 1,563 in 2009, and 1,795 in 2010. These numbers

demonstrate the prevalence of enforcement actions as regulatory tools to strengthen financial institutions and stabilize the financial system.

Promoting a safe, sound, and stable banking system—as well as a fair and transparent consumer financial services market—are important objectives of regulatory supervision. Federal bank regulatory agencies in the United States—the Federal Reserve System (FRS), which supervises state-chartered banks that are members of the FRS and all bank holding companies; the Federal Deposit Insurance Corporation (FDIC), which supervises state-chartered banks that are not members of the FRS; and the Office of the Comptroller of the Currency (OCC), which supervises federally chartered or national banks—have a broad range of enforcement powers over the institutions they supervise as well as the officers, directors, and employees associated with these supervised institutions.

Bank regulators supervise banks by conducting periodic examinations and ongoing monitoring activities. If regulators uncover unsafe, unsound, or illegal banking practices or other significant violations of laws or regulations, they can issue formal, publicly announced enforcement actions against banking organizations or against any individuals affiliated with the organization, including management staff, directors, and employees.[1] In this article, I will refer to them collectively as bank management. There are a number of different types of enforcement actions that can be issued against banks and bank management.

Actions against banking organizations

I include four types of enforcement actions in this article, ordered based on the severity of the problem detected (from most severe to less severe): deposit insurance termination or threat of termination, cease and desist, formal written agreement, and Call Report penalty.[2]

Deposit insurance termination/threat (DT). A DT is the most severe type of enforcement action, issued in extraordinary circumstances of serious violations. A DT indicates that the FDIC is considering terminating the institution's deposit insurance. When a bank has no tangible capital, the FDIC may suspend the bank's insurance pending completion of a formal deposit termination proceeding.[3] In more severe cases, the FDIC can terminate the bank's deposit insurance and effectively close the bank if it is in an unsafe or unsound condition or has engaged

in unsafe, unsound, or illicit practices that led to a severely weak financial condition and losses to the FDIC insurance fund. Noncompliance with other previous enforcement actions issued to the institution can also result in the termination of deposit insurance.

Cease and desist (C&D) order. A C&D is a severe enforcement action issued against banks and enforceable in the federal court system. A C&D is typically issued against a bank for violations of laws and regulations or for engaging in an unsafe or unsound business practice. Violations or unsafe or unsound practices may harm the interests of depositors and other stakeholders and result in bank insolvency, dissipation of assets or earnings, or a weakened financial condition. Banking organizations subject to a C&D are required to take actions or follow prescriptions in the orders. Some corrective actions may limit bank activities or functions through restrictions on growth, debt, or dividends. Other corrective actions may direct banks to divest problem assets or make restitutions for unjust gains or reckless behavior.

Formal written agreement (FA). An FA is a written agreement between the financial institution and the regulator and is considered less severe than a C&D. The provisions of an FA are set out in article-by-article form and prescribe those restrictions and remedial measures necessary to correct the bank's deficiencies or violations and return it to a safe and sound condition. An FA can be issued for a variety of reasons, including unsound financials, mismanagement of policies, or insider abuse. If a bank is resistant and ignores the regulatory measures prescribed, an FA is legally enforceable by issuing a C&D order or civil money penalties against the institution or its management.

Call Report penalty (CRP). A CRP is issued when a banking organization fails to make or publish its Consolidated Report of Condition and Income (Call Report) within the appropriate time periods or when it submits or publishes false or misleading Call Report information. Untimely or misleading documentation can interfere with proper bank audits and examinations. In such cases, a civil money penalty of not more than $3,200 per day may be assessed against the offending institution. However, financial resources, good faith of the institution, and history of previous violations are considered before such penalties are assessed.

Actions against bank management

Enforcement actions are not only issued against institutions—they may also be directed at individual members of bank management and other institution-affiliated parties. As such, I include one type of enforcement action issued against bank management, a prohibition from banking, in this article. A prohibition from banking is a severe type of enforcement action issued when an individual affiliated with a bank violates a law, C&D, or condition imposed in writing or engages in unsafe or unsound banking practices such as self-dealing loans or ignoring supervisory guidance. A prohibition from banking may remove, dismiss, or suspend this individual from employment and prohibit them from participating in the affairs of any insured depository institutions, their holding companies, or credit unions without prior regulatory or judicial approval. In practice, prohibitions from banking are typically issued in cases that involve loss or potential damage to the institution or its depositors, breach of fiduciary duty, or personal dishonesty or willful disregard for the institution's safety and soundness.

To determine the effects of enforcement actions on the cost of bank loans, my analysis also accounts for differences in the severity of individual sanctions. As such, I group enforcement actions by severity as well as type. For both bank and individual enforcement actions, I consider DTs, C&Ds, and prohibitions from banking to be more severe actions. Table 1 summarizes the enforcement actions used in this article and indicates that about 67 percent are issued against banks and 33 percent are issued against management officials.

II.   Determinants of the Cost of Bank Loans and Empirical Approach

It is unclear in advance how the cost of bank loans to borrowers may change as a result of enforcement actions. As such, I propose two opposing hypotheses about the effects of enforcement actions on the cost of bank loans. I then discuss the empirical approach to test which of the proposed hypotheses empirically dominates the other one overall.

Table 1
Enforcement Action by Type

Enforcement action	Number	Percent
Total	39	100
Against bank	26	66.7
Severe	11	28.2
Deposit insurance termination/threat (DT)	1	2.6
Cease and desist order (C&D)	10	25.6
Less severe	15	38.5
Formal written agreement (FA)	14	35.9
Call Report penalty (CRP)	1	2.6
Against management	13	33.3
Severe	13	33.3
Prohibition from banking	13	33.3

Note: Table presents the number and percentage of enforcement actions in the final sample.
Sources: FRS, FDIC, and OCC.

Hypotheses about the effects of enforcement actions on cost of bank loans

There are two common, opposing hypotheses about the effects of enforcement actions on the cost of bank loans. The regulatory discipline/uncertainty hypothesis suggests enforcement actions improve the treatment of borrowers. In contrast, the regulatory/financial constraints hypothesis suggests enforcement actions worsen the treatment of borrowers.

If the regulatory discipline/uncertainty hypothesis holds, then borrowers may receive more favorable loan contract terms from banks with enforcement actions. This hypothesis posits that enforcement actions imposed on a bank are bad news—specifically, that the bank was disciplined by regulators for bad behavior—which harms bank reputation and credibility with borrowers. In addition, this hypothesis posits that enforcement actions reveal new information about a bank's health, practices, or treatment of customers that is difficult to infer from other disclosures, thus creating uncertainty about the bank's condition and future prospects. As borrowers likely want a stable lending relationship, uncertainty may reduce the demand for the disciplined banks' loans. As a result, borrowers may demand a lower bank loan rate and better contract terms to compensate for the bank reputation or credibility loss and uncertainty.

In contrast, if the regulatory/financial constraints hypothesis holds, then borrowers may receive less favorable loan contract terms from disciplined banks. This hypothesis suggests that banks with enforcement actions may be financially constrained or under pressure by regulators to reduce risk. Accordingly, these banks may offer borrowers loans with a higher cost and less favorable contract terms to comply with the regulatory actions or to maintain profits and meet their debt obligations.

These competing hypotheses suggest that contract terms to borrowers may improve or deteriorate as a result of regulatory enforcement actions. The hypotheses are not mutually exclusive—each may apply to different sets of banks and borrowers. To assess which of these hypotheses empirically dominates, I compare the terms of loans initiated by disciplined banks before and after the enforcement actions. I first examine the effect on the direct bank loan cost to borrowers, or the loan rate. I then investigate whether enforcement actions have effects on non-price contract terms such as loan size, maturity, collateral, and covenants. As enforcement actions can also affect how lenders structure loans, I lastly assess the effects of enforcement actions on the loan syndicate size and transaction fees.

Data

The basic unit of my empirical analysis is a syndicated loan, also referred to as a facility or tranche. Syndicated loans are large dollar loans issued to sophisticated borrowers. The average loan size in my analysis is $18.87 million. While each loan has only one borrower, syndicated loans can have multiple lenders. For example, a lead bank may arrange for a group of banks or other financial institutions to make a loan jointly to a borrower.[4] The loan database reports the roles of lenders in each syndication. I consider only the lead lenders in my analysis, since these banks typically make the loan decisions and set the contract terms (Bharath, Dahiya, Saunders, and Srinivasan).[5]

For each loan in my sample, I collect information on the characteristics of the lead bank, the borrower, the loan, and the enforcement action against the lead bank. Data on lead bank characteristics are from the Call Reports and obtained for the calendar year immediately prior to the loan activation date.[6] Data on borrowers are from the COMPUSTAT dataset for the fiscal year ending immediately prior to the loan

activation date.[7] The syndicated loan database—Loan Pricing Corporation's *DealScan*—contains loan characteristics including the direct bank loan rate (loan rate or spread), the indirect cost of other loan terms (loan size, loan maturity, collateral requirements, and covenant restrictions), and the structure of bank loans (such as the number of lenders in a syndicated loan and loan transaction fees). Finally, I acquire information on bank regulatory enforcement actions manually from the FRS, FDIC, and OCC for the lead banks in my dataset for the period 1989–2011.[8] These include enforcement actions issued by all banking regulators against banking organizations or their management. My final merged dataset covers 39 banks subject to enforcement actions.[9]

For banks that receive more than one regulatory enforcement action, I keep only the first enforcement announcement, because the purpose of this study is to compare the cost of bank loans before an enforcement action with the cost after an enforcement action.[10] My final sample includes 6,825 loans issued by 39 sanctioned banks to 2,182 borrowers: 2,485 loans are initiated before the announcements of enforcement actions and 4,340 are initiated after the announcements.

Empirical model

I use ordinary least squares (OLS) regression analysis to examine the effect of enforcement actions on the loan rate and other contract terms. The main empirical model is:

(1) *Loan term indicator = f (post-sanction indicator, bank characteristics, borrower characteristics, loan characteristics, year fixed effects, bank fixed effects, loan type fixed effects, loan purpose fixed effects, industry fixed effects).*

In the regression, each observation represents a single loan. The main dependent loan variable is the bank loan rate, *loan spread*. The loan spread is the interest rate spread in basis points over the London Interbank Offered Rate (LIBOR).[11] To capture the effect of the enforcement action, I define a binary variable, *post-sanction*, which is equal to 1 if the loan is activated after the enforcement action announcement and 0 otherwise. To isolate the relationship between enforcement actions and the cost of bank loans, I control for bank characteristics, borrower characteristics,

loan characteristics, year fixed effects, bank fixed effects, loan type fixed effects, loan purpose fixed effects, and industry fixed effects.

First, I control for bank characteristics that could influence the cost of bank loans. Banks in poor financial condition, for example, may be more likely to charge their customers a higher loan price to maintain their profits and meet their short-term debt obligations. As such, the regression variables include proxies for CAMELS examination ratings.[12] These proxies are *capital adequacy* (the ratio of Tier 1 capital divided by bank risk-weighted assets), *asset quality* (the fraction of nonperforming loans to total loans), *management quality* (the ratio of overhead expenses to gross total assets [GTA]), *earnings* (return on assets or the ratio of annualized net income to GTA), *liquidity* (bank liquidity creation normalized by GTA), and *sensitivity to market risk* (the ratio of the difference between short-term assets and short-term liabilities to GTA).[13] In addition, I include *bank size* as a variable. Larger banks benefit from economies of scale and thus may be able to offer better rates to their customers. But larger banks also have more market power over their borrowers and thus may be able to charge them higher loan prices.

Second, I control for borrower characteristics that could influence the cost of bank loans, such as *borrower size* (the natural logarithm of a firm's total assets), the borrower's *market-to-book* ratio (the ratio of the market value of assets—specifically, the market value of equity plus the book value of debt—to the book value of assets to proxy for a firm's growth opportunities), *leverage* (the ratio of long-term debt to total assets), *profitability* (the ratio of earnings before interest, taxes, depreciation, and amortization [EBITDA] to total assets), *tangibility* (the ratio of tangible assets to total assets), and Altman *Z-score*, which controls for borrower default risk.[14]

Third, I control for loan characteristics that may be correlated with the price of bank loans, including *maturity*, *loan size* (which captures economies of scale in bank lending), and a *performance pricing* binary variable. This last variable captures any performance pricing features that explicitly vary the loan spread with the borrower's credit rating or financial performance.

Fourth, I use binary variables for each year, bank, loan type (term loans, revolvers, and other loans), loan purpose (acquisitions and

takeovers, general corporate purposes, other corporate purposes, recapitalizations, leveraged buyouts, and other miscellaneous purposes), and borrower one-digit SIC industry code. These "fixed effects" variables control for unmeasured idiosyncratic effects for each of these characteristics that could affect the loan risk and pricing structures. Data definitions and measurement details for all variables in the analysis are reported in Panel C of Appendix Table A-1.

III. Empirical Results

Enforcement actions may affect not only the rate of bank loans, but also the non-price contract terms and syndicate structure. As such, I run separate regressions to account for the effects of enforcement actions on each of these loan characteristics.

Effects of enforcement actions on rate of bank loans

To assess whether disciplined banks change the credit terms for their loans before or after the enforcement actions, I regress *loan spread* and other loan terms on the *post-sanction* binary indicator and the control variables. I also examine whether the cost of bank loans differs between bank and management enforcement actions and between more or less severe enforcement actions.

I first examine the effect on the loan spread, measured as the rate the borrower pays in basis points over the LIBOR. Column 1 in Table 2 shows the cost of bank loans with the *post-sanction* binary variable as the independent variable. The estimated coefficient on *loan spread* of –31.1 suggests an enforcement action leads to a 31.1 basis point decrease in a bank's loan spread. The average loan spread in the sample firms before an enforcement action is 180.6 basis points. Thus, other things equal, a bank's loan spread decreases by approximately 17 percent after an enforcement action. Since the average loan size for the sample firms after enforcement actions is $472 million, the post-sanction decreases in the loan spread imply an average annual decrease in interest receipts of approximately $1.5 million per loan.[15] Therefore, the effect of enforcement actions on the bank loan rate is both statistically and economically significant.[16]

The results for the other variables in the regression are consistent with expectations (see Appendix). Specifically, the results show that banks that are larger or have lower overhead costs, which may enjoy

Table 2

Effects of Enforcement Actions on Cost of Bank Loans–Regression Results

Independent variables	Dependent variable		
	Loan spread	Loan spread	Loan spread
	(1)	(2)	(3)
Post-sanction	-31.140*** (-6.104)		
Post-banksanction		-28.984*** (-3.837)	
Post-managementsanction		-32.115*** (-5.587)	
Post-sanction-severe			-27.897*** (-5.397)
Post-sanction-lesssevere			-21.260*** (-2.905)
Observations	6,825	6,825	6,825
Adjusted R²	0.590	0.590	0.589

*** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

Notes: Definitions and measurements of all variables are reported in Appendix Table A-1. Heteroskedasticity-robust t-statistics are reported in parentheses. See Appendix Table A-2 for full regression results.

economies of scale, are associated with a lower loan rate for borrowers. Moreover, borrowers that are smaller, highly leveraged, less profitable, and that have few tangible assets and higher credit risk tend to pay a higher bank loan rate. The results also show that loans with shorter maturity, larger size, and a performance pricing provision are associated with a lower bank loan rate. Finally, the model R-squared shows that the model fits the data well and explains about 59 percent of the variability of the loan spread.

Overall, the results are consistent with the regulatory discipline/uncertainty hypothesis that enforcement actions harm banks' reputation and credibility, causing them to offer a lower loan price to borrowers to avoid losing their business or to attract new customers. It is worth highlighting that the *post-sanction* binary variable measures the effects of the bank condition above and beyond any risk or information effects captured by the other right-hand-side variables. For example, the proxies for CAMELS ratings could partially capture the effect of bank risk and information uncertainty on the cost of debt to borrowers. A significant coefficient on the binary variable indicates that the

other right-hand-side variables do not fully capture the change in bank condition due to the enforcement action.

As mentioned above, enforcement actions can be issued against both banking organizations and individual members of bank management and may vary in severity. To discern whether the type and severity of enforcement action matters to my results, I conduct additional tests and report the results in columns 2 and 3 of Table 2. I classify DTs, C&Ds, and prohibitions from banking as more severe and FAs and CRPs as less severe. I expect that banks subject to more severe enforcement actions may have to compensate their borrowers with a larger decrease in loan spread and better loan terms to avoid losing their business or to attract new customers.

First, the results for the type of enforcement action suggest management enforcement actions may have a slightly greater effect on loan spreads than bank enforcement actions. The estimated coefficient for bank enforcement actions in column 2 of Table 2 suggests that banks see a 29 basis point decline in loan spread after a bank enforcement action. This decline translates into an average annual decrease in interest payments of approximately $1.4 million per loan. For management enforcement actions, the estimated coefficient suggests a 32.1 basis point decline in loan spread after the management action, translating into an average annual decrease in interest payments of approximately $1.5 million per loan. The results for both bank and management enforcement actions are economically significant.

Second, as expected, banks with more severe enforcement actions see higher declines in their loan spreads. The coefficient of –21.3 on the *post-sanction-lesssevere* term in column 2 indicates that banks see a 21.3 basis point decline in loan spreads after a less severe enforcement action, translating into an average annual decrease in interest payments of approximately $1 million per loan. In contrast, the coefficient of –27.9 on the *post-sanction-severe* term in column 3 indicates that banks see a 27.9 basis point decline in loan spreads after a severe enforcement action, translating into an average annual decrease in interest payments of approximately $1.3 million per loan. Thus, the results for both types of enforcement actions are economically significant, however the difference in coefficients between the two types of actions is not statistically important.

Effects of enforcement actions on non-price contract terms

By examining non-price terms of loan contracts, I can assess whether enforcement actions have effects beyond decreasing the price of bank loans for borrowers. After an enforcement action, lenders may compensate borrowers for the damage to their reputation and credibility by altering not only the loan rate but also other contract terms. As such, I focus on how enforcement actions affect the major non-price loan contract features: loan maturity (*log* [*loan maturity*]), loan size (*log* [*loan size*]), collateral (*collateral dummy*), and the number of covenants (*number of total covenants*). Appendix A provides descriptions for the calculation of each of these variables.[17]

Enforcement actions lead to an increase in loan maturity, or the time banks give borrowers to pay back their loans. Column 1 of Table 3 reports the results on the effect of enforcement actions on loan maturity, controlling for other variables that could correlate with maturity. The coefficient of 0.09 on the *post-sanction* binary variable indicates that after the enforcement action, banks offer their borrowers loans with a 9.7 percent longer maturity (3.7 months) than before sanction, implying that longer maturity may help address bank reputational and condition problems arising from the enforcement action.

In contrast, enforcement actions do not appear to affect banks' loan size, or the amount a borrower can borrow. Column 2 of Table 3 reports the results on the effect of enforcement actions on loan size, controlling for other variables that could correlate with loan size. The coefficient of 0.01 on the *post-sanction* binary variable is small in magnitude and not statistically significant, indicating that banks do not make any statistically or economically significant adjustments to the quantity of the loan after the enforcement action.

Likewise, enforcement actions do not affect borrowers' likelihood of pledging collateral (for example, assets or property) to the bank to secure repayment of the loan. Column 3 of Table 3 reports the results on the effect of enforcement actions on the likelihood of collateral after controlling for other variables that could correlate with collateral. The coefficient of 0.01 on the *post-sanction* binary variable is small in magnitude and not statistically significant, indicating that banks do not make any statistically or economically significant adjustments to collateral after the enforcement action.

Table 3

Effects of Enforcement Actions on Non-Price Contract Terms and Syndicate Structure—Regression Results

Independent variable	Dependent variable						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Log (loan maturity)	Log (loan size)	Collateral dummy	Number of total covenants	Number of lenders	Log (upfront fee)	Log (annual fee)
Post-sanction	0.097*** (3.586)	0.010 (0.189)	0.012 (0.577)	-0.398*** (-3.401)	1.175*** (3.475)	-0.269** (-2.225)	-0.113*** (-2.611)
Observations	7,698	7,698	7,698	7,698	7,698	1,167	1,643
Adjusted R²	0.473	0.726	0.382	0.433	0.409	0.383	0.645

*** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

Notes: Definitions and measurements of all variables are reported in Appendix Table A-1. Heteroskedasticity-robust *t*-statistics are reported in parentheses. See Appendix Table A-3 for full regression results.[19]

Covenants are an important feature of private loan contracts that allow banks to impose conditions on the borrower (for example, maintaining a certain financial condition) to ensure the risk of the loan does not unexpectedly deteriorate prior to maturity. To estimate the effect of enforcement actions on the covenant intensity of a loan, I track the total number of covenants included in the loan agreement and report the results in column 4 of Table 3. The coefficient of –0.39 on the *post-sanction* term shows that lenders impose fewer restrictions on loans to their borrowers after an enforcement action. On average, the number of covenants decreases by 0.39 (18.2 percent), from an average of 2.18 in the pre-sanction period to 1.79 in the post-enforcement action period after controlling for other characteristics.

Overall, these results suggest that the economic effect of enforcement actions on the effective cost of bank loans is likely even higher than that implied by the decline in loan spread alone.

Effects of enforcement actions on syndicate structure

In addition to altering contract terms, enforcement actions can also affect how lenders structure loans. In the originate-to-distribute lending model of syndication, no single bank provides all the financing. To reduce credit and liquidity risk and comply with various regulatory requirements, the lead bank distributes part of the loan to other institutions through the process of syndication.

Perceptions of heightened risk and uncertainty around disciplined banks may increase information problems between lenders and borrowers that may affect the structure of lenders in a loan. I investigate the effects of enforcement actions on three aspects of the lender structure: the total number of lenders in a loan (*number of lenders*) and the upfront and annual fees charged by lenders. The upfront fee (*log* [*upfront fee*]) is a one-time fee paid to lenders at the closing of the deal and can vary from 25 to 175 basis points of the total loan amount. The annual fee (*log* [*annual fee*]) is an annual charge against the entire commitment amount, whether used or unused, and is sometimes called the facility fee. The fees borrowers pay generally increase with the complexity and riskiness of the loan.

The number of lenders increases significantly in loans activated after the enforcement action. Column 5 of Table 3 reports the effects of the

enforcement actions on the number of lenders in a syndication. The coefficient of 1.18 on the *post-sanction* term suggests that after controlling for other variables, the average number of lenders in the post enforcement action period increases by about one-fifth, from 5.7 in the pre-enforcement period to about 6.87 in the post-enforcement period.[18]

Enforcement actions appear to have a dampening effect on upfront fees and annual fees charged by banks.[19] The *DealScan* fee information is limited, and my regressions for the fees are based on the non-missing observations for upfront fees and annual fees, respectively. Columns 6 and 7 of Table 3 report the regression results. The coefficients on the *post-sanction* term of –0.269 for the loan upfront fee and –0.113 for the loan annual fee show that after enforcement actions, both upfront and annual fees decrease. These declines suggest lenders charge lower transaction fees to compensate borrowers for the reputational and credibility loss and increased uncertainty after an enforcement action.

In sum, these results are consistent with the empirical dominance of the regulatory discipline/uncertainty hypothesis over the regulatory/ financial constraints hypothesis. This suggests that enforcement actions create reputational and credibility problems for banks. In reaction to this, banks may have to compensate borrowers with better loan prices and other favorable terms to attract their business.

IV.   Conclusions

Enforcement actions are important supervisory tools used to prevent risky or illicit behavior in banking. They impose clear direct costs on banks, as affected banks have to spend resources to correct the problems identified and sometimes have to pay fines or make payments to harmed parties. But enforcement actions may also impose indirect costs on banks, as actions are publicly announced and can potentially damage a bank's reputation. Uncertainty about a disciplined bank's condition or future prospects can also reduce demand for the bank's credit.

I investigate one indirect cost of enforcement actions: whether enforcement actions reduce banks' interest income by reducing the rate of bank loans and improving other loan terms to borrowers. My results suggest that enforcement actions lead to a considerable decrease in loan spreads for loans originated after the enforcement actions. In the post-enforcement-action period, lenders issue loans with a lower spread,

longer maturity, and fewer covenants compared with the pre-enforcement-action period. The lender structure also changes after enforcement actions: the syndicate size increases, while the transaction fees charged to the borrowers decrease. Overall, this evidence is broadly consistent with the regulatory discipline/uncertainty hypothesis that enforcement actions create reputational and credibility problems for the banks—and as a result, banks may have to compensate borrowers with better loan pricing and other favorable terms.

My findings show that enforcement actions can generate changes in the loan contracts that represent substantial costs to the banks through reduced income. By improving compliance with banking regulations, which reduces the likelihood of enforcement actions, banks may be able to avoid these costs. If banks cannot improve compliance, however, enforcement actions may also have important prudential implications. If enforcement actions result in less profitable bank loans, which could increase moral hazard incentives, regulators may need to intensify efforts to monitor underwriting standards at disciplined banks to avoid undesired consequences.

Appendix

Table A-1

Variable Definitions and Summary Statistics

Panel A

Variable name	Variable definition	Mean	P50	SD	P25	P75	N
Key dependent variable:							
Loan spread	Loan spread is measured as all-in spread drawn in the *DealScan* database. All-in spread drawn is defined as the amount the borrower pays in basis points over LIBOR or LIBOR equivalent for each dollar drawn down. (For loans not based on LIBOR, LPC converts the spread into LIBOR terms by adding or subtracting a differential which is adjusted periodically.) This measure adds the borrowing spread of the loan over LIBOR with any annual fee paid to the bank group.	179.587	150.000	133.489	75.000	255.000	6,825
Key independent variables:							
Post-sanction	An indicator equal to 1 if the loan is contracted after the announcement of enforcement action and 0 otherwise.	0.650	1.000	0.477	0.000	1.000	7,698
Post-banksanction	An indicator equal to 1 if the loan is contracted after the announcement of bank enforcement action and 0 otherwise.	0.193	0.000	0.395	0.000	0.000	7,698
Post-managementsanction	An indicator equal to 1 if the loan is contracted after the announcement of management enforcement action and 0 otherwise.	0.457	0.000	0.498	0.000	1.000	7,698
Post-sanction-severe	An indicator equal to 1 if the loan is contracted after the announcement of severe bank enforcement action and 0 otherwise.	0.510	1.000	0.499	0.000	1.000	7,698
Post-sanction-lesssevere	An indicator equal to 1 if the loan is contracted after the announcement of less severe bank enforcement action and 0 otherwise.	0.140	0.000	0.348	0.000	0.000	7,698

Table A-1 (continued)

Control variables— bank characteristics:	Description					
Capital adequacy (C)	A proxy of bank capital adequacy, Tier-1 risk-based capital ratio, calculated as the ratio of Tier-1 capital to risk-weighted assets.	0.089	0.089	0.013	0.080	0.096	7,698
Asset quality (A)	Asset quality evaluates the overall condition of a bank's portfolio and is evaluated by a fraction of nonperforming assets and assets in default. Noncurrent loans and leases are loans that are past due for at least 90 days or are no longer accruing interest. Higher proportion of nonperforming assets indicates lower asset quality.	0.006	0.002	0.009	0.002	0.005	7,698
Management quality (M)	A proxy of bank management quality calculated as total overhead costs to bank gross total assets.	0.052	0.053	0.013	0.040	0.061	7,698
Earnings (E)	Return on assets, calculated as the ratio of the annualized net income to bank gross total assets.	0.011	0.012	0.005	0.009	0.015	7,698
Liquidity (L)	Berger and Bouwman (2009) preferred liquidity creation measure normalized by gross total assets.	0.665	0.649	0.319	0.493	0.752	7,698
Sensitivity to market risk (S)	The bank sensitivity to interest rate risk, measured by the ratio of the difference between short-term assets and short-term liabilities to total assets.	-0.138	-0.126	0.119	-0.224	-0.082	7,698
Bank size	The natural logarithm of the bank total assets.	20.075	20.470	1.408	19.744	20.921	7,698

Panel B

Variable name	Variable definition	Mean	P50	SD	P25	P75	N
Control variables—borrower characteristics:							
Borrower size	The natural logarithm of the firm total assets (in millions of dollars).	7.334	7.340	2.112	5.881	8.878	7,698
Market-to-book	Firm market-to-book ratio calculated as (market value of equity plus the book value of debt)/total assets.	1.903	2.074	48.621	1.297	3.375	7,698
Leverage	Firm leverage measured as (long-term debt + debt in current liabilities)/total assets.	0.291	0.240	0.238	0.102	0.438	7,698
Profitability	Firm profitability calculated as EBITDA/total assets.	0.120	0.125	0.130	0.085	0.174	7,698
Tangibility	Firm tangibility calculated as net property, plant, and equipment/total assets.	0.331	0.274	0.234	0.141	0.495	7,698
Z-score	Modified Altman Z-score = (1.2 working capital + 1.4 retained earnings + 3.3 EBIT + 0.999 sales)/total assets. As in Graham, Li, and Qiu, I use a modified Z-score, which does not include the ratio of market value of equity to book value of total debt, because a similar term, market-to-book, enters the regressions as separate variable.	1.340	1.501	2.235	0.720	2.308	7,698
Investment grade	Binary variable equal to 1 for borrowers rated BBB- or above and 0 otherwise.	0.324	0.000	0.468	0.000	1.000	7,698
Speculative grade	Binary variable equal to 1 for borrowers rated BB or below and 0 otherwise.	0.222	0.000	0.416	0.000	0.000	7,698
Unrated	Binary variable equal to 1 if the borrower does not have a S&P borrower credit rating.	0.455	0.000	0.498	0.000	1.000	7,698
Control variables—loan characteristics:							
Log(loan maturity)	Natural logarithm of the loan maturity. Maturity is measured in months.	3.589	3.892	0.720	2.944	4.111	7,698
Log(loan size)	Natural logarithm of the loan facility amount. Loan amount is measured in millions of dollars.	18.883	19.114	1.768	17.910	20.030	7,698
Performance pricing	A binary variable that equals one if the loan facility uses performance pricing.	0.376	0.000	0.484	0.000	1.000	7,698
Control variables—year, bank, and industry fixed effects:							
Year fixed effects	Binary variables for the year of loan origination.						
Bank fixed effects	Binary variables for each of the lead banks.						
Industry fixed effects	Binary variables that correspond to the one-digit SIC code of the borrower.						

Panel B (continued)

Control variables—loan type fixed effects:						
Term loans	Loan type indicator for term loans: term loan (regular; A through H) and delay draw term loan.	0.236	0.000	0.424	0.000	0.000	7,698
Revolvers	Loan type indicator for revolving credit lines: revolver/line of credit, 364-day facility, or limited line.	0.561	1.000	0.496	0.000	1.000	7,698
Other loans	Loan type indicator for all other types of lending facilities.	0.204	0.000	0.403	0.000	0.000	7,698
Control variables—loan purpose fixed effects:						
Acquisition	Loan purpose indicator for acquisition or takeover.	0.141	0.000	0.348	0.000	0.000	7,698
General	Loan purpose indicator for general corporate purposes, capital expenditure, or working capital.	0.561	1.000	0.496	0.000	1.000	7,698
LBO	Loan purpose indicator for LBO/MBO.	0.021	0.000	0.144	0.000	0.000	7,698
Recapitalization	Loan purpose indicator for recapitalization or debt repayment.	0.145	0.000	0.352	0.000	0.000	7,698
Miscellaneous	Loan purpose indicator for the following reasons: project finance, trade finance, equipment purchase, stock buyback, IPO related financing, exit financing, spinoff, real estate, telecom buildout.	0.023	0.000	0.149	0.000	0.000	7,698
Other	Loan purpose indicator for debtor-in-possession, CP backup, credit enhancement or ESOP.	0.109	0.000	0.312	0.000	0.000	7,698

Panel C

Variable name	Variable definition	Mean	P50	SD	P25	P75	N
Other loan terms and lender structure variables:							
Collateral dummy	A binary variable that equals 1 if the loan facility is secured by collateral and 0 otherwise.	0.407	0.000	0.491	0.000	1.000	7,698
Number of total covenants	The total number of covenants included in the debt agreement.	2.484	2.000	2.985	0.000	4.000	7,698
Number of lenders	The total number of lenders in a single loan.	8.753	6.000	8.646	3.000	12.000	7,698
Log(upfront fee)	The natural logarithm of the fee paid by the borrower upon closing of a loan (measured in basis points).	3.494	3.555	1.034	2.773	4.227	1,167
Log(annual fee)	The natural logarithm of the annual or facility fee, which is the annual charge against the entire loan commitment amount, used or unused (measured in basis points).	2.583	2.485	0.661	2.079	2.918	1,643

Notes: Table presents summary statistics and definitions of the variables in my analysis. It contains means, medians (P50), standard deviations (SD), 25th percentile (P25), 75th percentile (P75) and number of observations (N) on all regression variables used to examine the effect of enforcement actions on cost of bank loans.
Sources: Author's calculations based on data from LPC *DealScan*, Call Reports, Compustat, and enforcement actions compiled from FRS, FDIC, and OCC.

Table A-2
Effects of Enforcement Actions on Cost of Bank Loans

Independent variables	Dependent variable		
	(1)	(2)	(3)
	Loan spread	Loan spread	Loan spread
Post-sanction	-31.140***		
	(-6.104)		
Post-banksanction		-28.984***	
		(-3.837)	
Post-managementsanction		-32.115***	
		(-5.587)	
Post-sanction-severe			-27.897***
			(-5.397)
Post-sanction-lesssevere			-21.260***
			(-2.905)
Bank characteristics:			
Capital adequacy (C)	167.112	175.470	160.954
	(0.730)	(0.767)	(0.704)
Asset quality (A)	310.191	297.552	280.311
	(0.477)	(0.454)	(0.429)
Management quality (M)	-825.297**	-812.006**	-706.101**
	(-2.316)	(-2.264)	(-1.986)
Earnings (E)	176.365	181.803	196.970
	(0.475)	(0.488)	(0.527)
Liquidity (L)	12.995	12.845	12.715
	(1.594)	(1.576)	(1.557)
Sensitivity to market risk (S)	-36.818	-39.904	-36.617
	(-1.603)	(-1.633)	(-1.507)
Bank size	-17.865**	-17.100**	-13.616
	(-2.153)	(-1.993)	(-1.586)
Borrower characteristics:			
Borrower size	-15.493***	-15.490***	-15.483***
	(-11.757)	(-11.750)	(-11.739)
Market-to-book	-0.035	-0.035	-0.034
	(-0.770)	(-0.773)	(-0.762)
Leverage	157.740***	157.692***	158.043***
	(22.038)	(22.004)	(22.100)
Profitability	-104.539***	-104.617***	-104.539***
	(-6.533)	(-6.531)	(-6.521)
Tangibility	-28.026***	-28.084***	-28.154***
	(-5.236)	(-5.260)	(-5.272)
Z-score	-1.862*	-1.856*	-1.864*
	(-1.740)	(-1.731)	(-1.737)
Investment grade	-34.015***	-34.030***	-34.145***
	(-9.837)	(-9.842)	(-9.869)
Speculative grade	31.695***	31.686***	31.645***
	(8.185)	(8.183)	(8.169)

Table A-2 (continued)

Loan characteristics:			
Log(loan maturity)	-10.249***	-10.248***	-10.281***
	(-3.682)	(-3.681)	(-3.699)
Log(loan size)	-10.598***	-10.600***	-10.557***
	(-7.640)	(-7.639)	(-7.604)
Performance pricing	-20.083***	-20.087***	-20.088***
	(-9.073)	(-9.074)	(-9.075)
Constant	787.587***	771.586***	698.399***
	(4.696)	(4.437)	(4.015)
Year fixed effects	✓	✓	✓
Bank fixed effects	✓	✓	✓
Loan type fixed effects	✓	✓	✓
Loan purpose fixed effects	✓	✓	✓
Industry fixed effects	✓	✓	✓
Observations	6,825	6,825	6,825
Adjusted R^2	0.590	0.590	0.589

***   Significant at the 1 percent level
**   Significant at the 5 percent level
*   Significant at the 10 percent level

Notes: Post-sanction is a binary variable equal to 1 if the loan is initiated after the announcement of enforcement action and 0 otherwise. Post-banksanction is an indicator equal to 1 if the loan is initiated after the announcement of bank enforcement action and 0 otherwise. Post-managementsanction is an indicator equal to 1 if the loan is initiated after the announcement of management enforcement action and 0 otherwise. Post-sanction-severe is an indicator equal to 1 if the loan is initiated after the announcement of severe enforcement action and 0 otherwise. Post-sanction-lesssevere is an indicator equal to 1 if the loan is initiated after the announcement of less severe enforcement action and 0 otherwise. All models include loan type dummies, loan purpose dummies, one-digit industry SIC binary variables, bank fixed effects, and year fixed effects. Details of definitions and measurements of all the other variables are reported in Table A-1. Heteroskedasticity-robust *t*-statistics are reported in parentheses.

Table A-3

Effects of Enforcement Actions on Non-Price Contract Terms and Syndicate Structure

Independent variables	Dependent variables						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Log (loan maturity)	Log (loan size)	Collateral dummy	Number of total covenants	Number of lenders	Log (upfront fee)	Log (annual fee)
Post-sanction	0.097*** (3.586)	0.010 (0.189)	0.012 (0.577)	-0.398*** (-3.401)	1.175*** (3.475)	-0.269** (-2.225)	-0.113*** (-2.611)
Bank characteristics:							
Year fixed effects	-2.252** (-2.210)	-0.229 (-0.121)	-0.138 (-0.188)	-5.209 (-1.443)	25.357** (2.215)	4.215 (1.175)	5.174* (1.847)
Asset quality (A)	-3.285 (-1.220)	10.723** (2.154)	-0.648 (-0.316)	-7.723 (-0.795)	19.475 (0.737)	15.074* (1.887)	12.038** (2.118)
Management quality (M)	3.690** (2.081)	2.254 (0.706)	-2.164 (-1.621)	-12.531* (-1.675)	-53.875*** (-2.857)	-8.034 (-1.464)	-8.355** (-2.060)
Earnings (E)	-2.780 (-1.464)	-0.581 (-0.175)	-0.879 (-0.652)	3.132 (0.405)	10.974 (0.567)	-5.905 (-0.796)	-8.245** (-2.537)
Liquidity (L)	0.145*** (2.663)	-0.096 (-1.029)	-0.005 (-0.124)	0.465** (2.153)	-0.470 (-0.714)	0.519 (1.481)	-0.010 (-0.067)
Sensitivity to market risk (S)	0.021 (0.161)	0.458** (2.127)	0.033 (0.395)	-0.759 (-1.479)	-5.907*** (-4.938)	-0.122 (-0.317)	0.344 (1.144)
Bank size	0.151*** (3.479)	-0.005 (-0.061)	0.035 (0.987)	-0.130 (-0.626)	-0.640 (-1.524)	0.034 (0.228)	-0.056 (-0.494)
Borrower characteristics:							
Borrower size	0.006 (0.778)	0.596*** (59.266)	-0.051*** (-10.713)	-0.324*** (-11.966)	1.322*** (15.919)	-0.055* (-1.847)	-0.113*** (-7.705)
Market-to-book	-0.000 (-0.378)	0.000*** (3.681)	0.000 (0.189)	0.000 (0.119)	0.002** (2.349)	0.000 (0.297)	-0.001** (-2.261)
Leverage	-0.082** (-2.228)	-0.267*** (-4.291)	0.285*** (11.432)	1.176*** (7.685)	-0.451 (-1.168)	1.272*** (9.161)	1.073*** (11.829)
Profitability	0.304*** (4.061)	0.568*** (4.465)	-0.283*** (-6.117)	-0.129 (-0.484)	-1.154* (-1.886)	-0.531*** (-2.715)	-0.599*** (-2.883)
Tangibility	0.021 (0.685)	0.047 (0.857)	-0.100*** (-4.196)	-0.813*** (-5.991)	-0.363 (-0.970)	-0.182 (-1.430)	-0.117** (-1.971)
Z-score	-0.008** (-2.012)	-0.017* (-1.886)	-0.002 (-0.919)	0.011 (0.762)	-0.109*** (-3.170)	-0.007 (-0.472)	-0.033*** (-2.763)
Investment grade	-0.108*** (-4.879)	0.114*** (3.129)	-0.139*** (-9.388)	-0.417*** (-5.238)	0.606** (2.273)	-0.186* (-1.926)	-0.238*** (-7.071)
Speculative grade	0.106*** (5.763)	0.172*** (5.178)	0.137*** (8.939)	0.633*** (7.045)	-0.159 (-0.672)	0.033 (0.395)	0.371*** (5.013)

Table A-3 (continued)

Loan characteristics:							
Log(loan maturity)		0.125*** (4.946)	0.008 (0.896)	0.143*** (2.893)	0.410*** (2.695)	0.145** (2.570)	0.009 (0.265)
Log(loan size)	0.040*** (4.749)		-0.017*** (-3.302)	0.067** (2.408)	1.897*** (21.880)	-0.074** (-2.464)	-0.016 (-1.002)
Performance pricing	0.107*** (8.418)	0.283*** (12.713)	0.175*** (17.024)	2.333*** (38.060)	2.710*** (15.270)	-0.263*** (-4.437)	0.076*** (3.037)
Constant	-1.029 (-1.190)	14.592*** (8.902)	0.443 (0.619)	6.144 (1.480)	-18.048** (-2.070)	3.148 (1.094)	4.803** (2.024)
Year fixed effects	✓	✓	✓	✓	✓	✓	✓
Bank fixed effects	✓	✓	✓	✓	✓	✓	✓
Loan type fixed effects	✓	✓	✓	✓	✓	✓	✓
Loan purpose fixed effects	✓	✓	✓	✓	✓	✓	✓
Industry fixed effects	✓	✓	✓	✓	✓	✓	✓
Observations	7,698	7,698	7,698	7,698	7,698	1,167	1,643
Adjusted R^2	0.473	0.726	0.382	0.433	0.409	0.383	0.645

*** Significant at the 1 percent level
** Significant at the 5 percent level
* Significant at the 10 percent level

Notes: Post-sanction is a binary variable equal to 1 if the loan is initiated after the announcement of enforcement action and 0 otherwise. All models include loan type dummies, loan purpose dummies, one-digit industry SIC binary variables, bank fixed effects, and year fixed effects. The details of definitions and measurements of all the other variables are reported in Table A-1. Heteroskedasticity-robust t-statistics are reported in parentheses.

Endnotes

[1]Unsafe or unsound practices refer to any actions or omissions which are contrary to generally accepted standards of prudent bank operation and, if continued, are likely to lead to abnormal risk or loss to the institution and its stakeholders. In addition to public enforcement actions, regulators can also issue informal or non-legally binding enforcement actions to banks. These actions can include a commitment letter, board resolution, or a Memorandum of Understanding (MOU). These actions are outside the scope of this article, as they are not publicly available and thus would not affect public perception of the banks.

[2]Some other types of public enforcement actions are not included in this article, as they are not applicable to the banks in the syndicated loan market used in this analysis. However, the actions included in this article tend to be the most common. A full list of all types of public enforcement actions is available on regulatory websites such as https://www.fdic.gov/bank/individual/enforcement/edoaction.html.

[3]Bank capital is the value of the bank's assets minus its liabilities (or debts). Tangible capital is a measure of bank solvency, determined as bank book capital minus intangible assets, goodwill, and preferred equity.

[4]The loan database I use (Loan Pricing Corporation's *DealScan*) has information about loans at origination but not information about how loans change over time (Strahan). Thus, these data do not contain, for example, loan amendments. However, this is a benefit, since I am able to compare terms of new loans before and after enforcement actions.

[5]I follow Ivashina to identify the lead bank of a facility. If a lender is denoted as the "administrative agent," it is designated as the lead bank. If no lender is denoted as the "administrative agent," I designate the lead bank as a lender who is denoted as the "agent," "arranger," "book-runner," "lead arranger," "lead bank," or "lead manager." In the case of multiple lead banks, I select the bank with the greatest total assets.

[6]For banks owned by a bank holding company (BHC), lending capacity may depend on the bank's own financial condition and the condition of other banks in the BHC. I aggregate Call Report data on all the banks in each BHC at the holding company level. This aggregation is done for all bank-level variables. If the commercial bank is independent, I keep the data for the commercial bank. For convenience, I use the term bank or lender to mean either type of entity.

[7]I exclude from the analysis banks and borrowers that cannot be matched to the loan database (*DealScan*) or that have missing Call Report or COMPUSTAT information on the key variables. The data link between *DealScan* and COMPUSTAT is provided by Chava and Roberts. I also exclude from the analysis firms in the financial services industry (SIC industry codes from 6000 to 6999) and non-U.S. firms (as in Bharath, Dahiya, Saunders, and Srinivasan).

[8]Public disclosure of all formal enforcement actions was only mandated starting in 1989. Records became more broadly available online in the 1990s. I start my sample in 1987 to ensure enough time elapses to compare the cost of bank loans before and after any enforcement actions were assessed.

[9]I focus on banks subject to enforcement actions because the goal of this study is to compare the cost of loans issued before enforcement actions with loans issued after them. As such, it is important to note that any inferences drawn apply only to banks with such actions. To address any selection bias or control for any other potential, unobservable banking shocks contemporaneous with the enforcement actions (for example, post-crisis conditions that apply to all banks), I also rerun my tests using a sample that pools the disciplined banks with other undisciplined banks with similar characteristics (CAMELS proxies and size) based on propensity score matching (nearest-neighbor matching without replacement). For these tests, I use a difference-in-difference methodology, which accounts for omitted factors that may affect disciplined and undisciplined banks alike. My conclusions remain unchanged using this alternative method.

[10]If I were to keep the second enforcement announcement for a bank in the sample, the pre-announcement window of the second enforcement action could overlap with the post-announcement window of the first enforcement action and confound the comparison. In the original enforcement action database, 12 banks received more than one enforcement action: four received two or three actions, and eight received more than three actions. For banks with multiple enforcement actions, I compare loans initiated between the first and the second enforcement action with those initiated after the second enforcement action and do not find a significant difference in contract terms. This suggests no significant additional effect on terms due to a second enforcement action. In an additional test, I exclude banks subject to multiple actions; the results continue to hold.

[11]For loans not based on LIBOR, *DealScan* converts the spread into LIBOR terms by adding or subtracting a differential which is adjusted periodically.

[12]CAMELS examination ratings are confidential. However, proxies for CAMELS ratings are used in other studies, including in Duchin and Sosyura; Berger and Roman (2015, forthcoming); and Berger, Makaew, and Roman.

[13]Tier 1 capital is a measure of bank solvency consisting of bank common shares, preferred shares, retained earnings and deferred tax assets. Risk-weighted assets are a bank's assets weighted according to their risk. I use Berger and Bouwman's preferred measure of bank liquidity creation, a direct measure of bank illiquidity, given that when a bank creates liquidity through loans and loan commitments to borrowers, it makes itself more illiquid in the process. Their preferred measure of liquidity creation is the "cat fat" measure, which classifies loans by category (cat) and includes off-balance sheet activities (fat). The cat fat measure is calculated as follows: cat fat = 0.5 * illiquid assets (cat) + 0 * semiliquid assets (cat) − 0.5 * liquid assets + 0.5 * liquid liabilities − 0.5 * illiquid liabilities − 0.5

* equity + 0.5 * illiquid guarantees – 0.5 * liquid guarantees – 0.5 * liquid de-rivatives. Bank liquidity creation data are available at https://sites.google.com/a/tamu.edu/bouwman/data.

[14]I use the modified Altman Z-score, calculated as (1.2 * working capital + 1.4 * retained earnings + 3.3 * EBIT + 0.999 * sales)/total assets as in Graham, Li, and Qiu. This variable does not include the ratio of market value of equity to book value of total debt because a similar term, market-to-book, enters the re-gressions as a separate variable. I also use an alternative specification that controls for unobservable borrower characteristics through borrower fixed effects, and the results are consistent with the main results reported.

[15]Interest receipt decrease is: (31.1 * 0.0001) * $472 million = $1.5 million.

[16]In unreported results, I examine whether the effect of the enforcement ac-tion could be short-lived and thus disappear over time by looking separately at the effects of restatement on loans that were issued in each post-sanction year. Al-though the largest decrease in loan spread is registered by $t+2$, the results generally indicate no significant differences in the loan spread decrease for post-restatement loans initiated in any of the years $t+1$, $t+2$, $t+3$, or $t(\geq 4)$. In addition, there are no significant effects prior to the enforcement action in t (–2, –1) or at the year of the action t, suggesting no private information is leaked to the public prior to the public release of the enforcement actions.

[17]The total number of covenants includes both financial and general cove-nants in the loan contract. Financial covenants generally place limits on account-ing variables and ratios that must be maintained while the debt is outstanding. General covenants refer to restrictions on prepayment, dividends, or voting rights. Prepayment covenants generally mandate early retirement of the loan conditional on an event such as a security issuance or asset sale. Prepayment covenants can be of three types—equity, debt, and asset—and are stated as percentages that cor-respond to the fraction of the loan that must be repaid in the event the covenant is violated. Dividend covenants restrict the ability of the borrower to distribute dividends to its shareholders if certain conditions are not met. The covenants on voting rights mandate the percentage of lenders required to approve changes on the terms in the loan agreement.

[18]In unreported results, I also investigate whether the change in the loan rate (rather than the enforcement actions) may be affecting the number of lenders in the syndicate by rerunning the regression on the number of lenders in column 5 of Table 2 while controlling for the loan spread. I find that controlling for loan spread has little effect on the magnitude and significance of the effect of the enforcement action on the number of lenders. However, I prefer to leave this control out of the main specification, as loan spread and number of lenders may be simultaneously determined—that is, the lead bank may change the pricing of the loan based on the investors' demand.

[19]The syndicated loans also include other fees such as a commitment fee, utilization fee, letter of credit fee, and cancellation fee, among others. However, I focus on the upfront fee and the annual fee because they tend to be the most common and important.

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