Finance and Economics Discussion Series

Federal Reserve Board, Washington, D.C.
ISSN 1936-2854 (Print)
ISSN 2767-3898 (Online)

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2024-025

Please cite this paper as:
QIu, Buhui, and Teng Wang (2024). "Corporate Mergers and Acquisitions Under Lender Scrutiny," Finance and Economics Discussion Series 2024-025. Washington: Board of Governors of the Federal Reserve System, https://doi.org/10.17016/FEDS.2024.025.

Corporate Mergers and Acquisitions Under Lender Scrutiny *

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January 2024

Abstract

This paper examines corporate mergers and acquisitions (M&A) outcomes under lender scrutiny. Using the unique shocks of U.S. supervisory stress testing, we find that firms under increased lender scrutiny after their relationship banks fail stress tests engage in *fewer* but *higher-quality* M&A deals. Evidence from comprehensive supervisory data reveals improved credit quality for newly originated M&A-related loans under enhanced lender scrutiny. This improvement is further evident in positive stock return reactions to M&A deals financed by loans subject to enhanced lender scrutiny. As companies engage in fewer but higher-quality deals, they also experience higher returns on assets. Our findings highlight the importance of lender scrutiny in corporate M&A activities.

JEL Classification: G21; G34.
Keywords: Mergers and Acquisitions; Lender Scrutiny; Stress Tests.

*The views expressed in this paper are solely those of the authors and should not be interpreted as reflecting the views of the Federal Reserve Board or the Bank for International Settlements. We thank Xiaohu Deng, Bora Durdu, Isil Erel (discussant), Croci Ettore (discussant), Kathleen Johnson, Tümer Kapan (discussant), Doowon Lee, Jane Luo, Doriana Ruffino, Thomas To, Kangzhen (Ken) Xie (discussant), Alfred Yawson, Steven Ongena, conference participants at Midwest Finance Association Annual Meeting, the Federal Reserve Stress Testing Research Conference, the Paris December Finance Meeting, and the Financial Management Association Annual Meeting, and seminar participants at the Federal Reserve Board, Colorado State University, the Financial Services Agency of Japan, the University of Adelaide, the University of Newcastle, the University of Sydney and the University of Tasmania for helpful comments and suggestions on the paper. All errors are our own.

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"The Federal Reserve is strongly committed to stress testing as a cornerstone of our bank supervisory and financial stability missions. Stress testing is perhaps the most successful supervisory innovation of the post-crisis era."

—Jerome H Powell

1 Introduction

Despite trillions of dollars spent on corporate mergers and acquisitions (M&A) each year, the evidence in the literature clearly indicates that these transactions do not always benefit acquiring firms' shareholders. The literature suggests that executives often engage in agency-motivated acquisitions to benefit themselves (e.g., Grinstein and Hribar 2004; Harford and Li 2007; Ishii and Xuan 2014) at the expense of shareholders. M&A can even lead to significant shareholder wealth destruction (e.g., Moeller et al. 2004; Moeller et al. 2005). Banks, a major source of funding for corporate M&A activity,[1] are known for their special ability in scrutinizing loan applications and investment projects of higher quality (e.g., Stiglitz and Weiss 1981; Bester 1985; Diamond 1991; Boyd and Prescott 1986; Marquez 2002). Can enhanced lender scrutiny affect corporate M&A activity and the shareholder value of acquiring firms? This paper examines corporate M&A outcomes under enhanced lender scrutiny following the unique shocks of bank stress test failures.

Testing the direct effects of lender scrutiny on corporate M&A activities presents several identification challenges. One issue is that the strength of lender scrutiny cannot be directly observed or measured. Additionally, even if it could be observed, the level of scrutiny would likely be correlated with various characteristics of corporate borrowers, making it difficult to establish causality. In this study, we consider banks failing the Federal Reserve's forward-looking stress tests as significant events that directly increase the loan scrutinizing incentives of the failed banks. Our findings indicate a significant

[1]Financing corporate M&A often involves mega-syndicated loans. For example, when financing its acquisition of Aetna in 2018, CVS entered into a $5 billion unsecured term loan agreement with a maturity of three to five years.

effect of enhanced lender scrutiny from stress test failed banks on corporate borrowers' M&A activities.

Indeed, recent studies suggest that capital regulations can increase banks' monitoring incentives and thus the efficiency of banks' activities (e.g. Begenau 2020). Federal Reserve's Supervisory Stress Tests, as the cornerstone in the U.S. post-Global Financial Crisis capital regulatory framework, are ideal for tackling the aforementioned identification challenges for the following reasons. First, banks take failing stress tests seriously. Supervisory stress tests are installed to assess whether banks have enough capital to survive adverse economic shocks. Failing the stress test causes severe reputational damage and leads to immediate constraints on a bank's capital distribution plan, including the prohibition of dividend distribution and net share repurchase.[2] The significance of these events is well stated by Michael Corbat, former CEO of Citigroup, who viewed passing the following year's stress test as Mission No. 1. After Citigroup failed the stress test in 2014, Mr. Corbat emphasized that "*If we don't get this right, we don't deserve to stay in business.*"[3]

Second, the forward-looking nature of the supervisory stress tests matches that of banks' scrutiny activity. One of the unique features of the supervisory stress tests is that it is the only *forward-looking* capital regulatory tool that projects the risks of loans on banks' portfolios. Indeed, in its methodology disclosure document, the Federal Reserve mentioned that it "projects 13 quarters of losses on loans in the accrual loan portfolio using ... the expected-loss framework".[4] The forward-looking nature of the Supervisory Stress Tests aligns well with the nature of banks' loan screening and scrutinizing activity on their loan portfolios. Banks take stress tests seriously and use the results as a wake-up call to improve their due diligence in assessing their clients' new investment projects, especially risky M&A deals.

[2]A number of banks failed the stress tests and were required to raise new capital and/or change their distribution plans. In contrast, banks that passed the stress tests, even by a small margin, were not required to do so.

[3]See https://www.wsj.com/articles/citigroup-fights-to-recover-from-stress-test-failure-1403291332.

[4]See https://www.federalreserve.gov/publications/files/2021-april-supervisory-stress-test-methodology.pdf.

Third, given the sheer size of M&A-related loans and the level of riskiness involved, having these loans on banks' balance sheets has substantial implications on the stress test results. M&A is the largest and riskiest type of corporate investment, and it is known that M&A increases the acquiring firms' default risk (Furfine and Rosen 2011). According to the Federal Reserve's stress test methodology, larger and riskier loans not only affect the calculation of risk-weighted assets but also contribute to higher projected losses. This poses a challenge for banks holding risky M&A loans in passing the stress test.[5] Absent effective scrutiny, a large and risky M&A-related loan on the balance sheet could even pose pipeline risk to the bank in the future rounds of stress tests (e.g., Bruche et al. 2020). Therefore, when a bank fails a stress test, the bank will most likely pay extra attention to scrutinize the quality of its borrowers' new M&A deals. Importantly, such enhanced bank scrutiny due to stress test failure is exogenous to the banks' borrower firms. Due to the enhanced bank scrutiny, we conjecture that corporate borrowers of the failed bank will conduct a smaller number of M&A deals of higher quality.

Importantly, our setting focuses solely on the stress test *failure* among stress-test-participating banks. Critically, while non-participating and participating banks have significant differences, stress test failures are largely unpredictable, which provides more exogenous shocks to borrower firms. In our analysis, we include borrower firms of banks subjected to the Supervisory Capital Assessment Program (SCAP hereafter) and/or Comprehensive Capital Analysis and Review (CCAR hereafter) stress tests and employ a stacked cohort difference-in-differences (DID) regression framework similar to the one employed in Gormley and Matsa (2011).[6] In particular, for each stress test event, we form an event subsample by focusing on the quarters before and after the test result release

[5]For further information, see https://www.federalreserve.gov/publications/files/2018-dfast-methodology-results-20180621.pdf.

[6]Because banks subjected to stress tests are very different from those not subjected to stress tests, including firms that only borrow from banks not subjected to stress tests can introduce selection bias into our analysis on the impact of bank stress test failure on borrower M&A activities.

quarter. The stress test subsamples are then stacked together to form the full sample for our DID analysis.

Consistent with our conjecture, the results from the DID analysis reveal that relative to borrower firms not exposed to a bank stress test failure, borrowers under the enhanced scrutiny from a stress test failed bank significantly reduce their M&A activity in the quarters following the stress-test result release quarter. Compared with firms not exposed to bank stress test failures, treated firms, on average, reduce their M&A deal value (deal count) by $24.4 million (0.01 deal) per quarter, which is 68% (20.8%) of the average deal value (average deal count) per quarter in the sample. These findings are robust to controlling for various borrower firm and bank characteristics and firm and year-quarter fixed effects.

A bank can fail a stress test based on quantitative or qualitative grounds. Compared with stress test failures based on quantitative grounds (i.e., one of the bank's projected capital ratios in the adverse scenarios is lower than the required minimum), failures based on qualitative grounds (e.g., the Federal Reserve Board views the bank as having substantial deficiencies in its internal capital planning process) are even more difficult to predict. We find that the negative effect of bank stress test failures on borrower M&A activities derives mostly from stress test failures based on the qualitative grounds, which further alleviates endogeneity concerns.

A potential concern is that a borrower firm could switch to a different lender when its relationship bank fails a stress test and continues acquiring loans to fund M&A (e.g., Ioannidou and Ongena 2010). We find that excluding relationship switchers that switch away from failed banks when engaging in subsequent M&A financing does not affect our findings. Furthermore, we examine whether the observed negative effect of bank stress test failure on borrower M&A activity merely reflects the possible mean-reverting behavior in M&A activity. We find that the dampening effect of bank stress test failure on

borrower M&A activity remains qualitatively unchanged after controlling for borrowers' previous M&A activity.

Another concern is that the negative treatment effect may be driven by nonparallel M&A trends before the stress test result is released. We use a dynamic DID framework to identify the exact timing of the treatment effect. We find that the enhanced lender scrutiny on borrower M&A activity only starts to kick in from the test result release quarter onward, but it does not exist in any of the quarters prior to the test result release. This finding suggests that the parallel-trends assumption for the efficacy of the DID approach is satisfied, and the treatment effect of stress testing failure on borrower M&A activity is likely causal.

We next conduct tests examining the mechanisms through which bank stress test failures affect borrower firms' M&A activities. Banks are known to actively screen borrower loan applications to manage their lending portfolio default risk. Failing a stress test constitutes a significant blow to a bank's reputation, and the failed bank needs to change its lending and risk-management behavior to avoid subsequent stress test failures. Thus, we posit that the failed bank may increase its scrutiny on borrower firms' risky investment projects, especially M&A projects, to reduce its loan default risk, which can lead to a subsequent reduction in borrower firms' M&A activities. This is because M&A can significantly increase the acquiring firms' default risk (Furfine and Rosen 2011); such default risk can be further amplified if a M&A deal ends up destroying the acquiring firm's shareholder value.

To provide direct evidence on this enhanced lender scrutiny mechanism, we look at the changes in the credit quality of loans that are newly originated to fund M&A deals after bank stress test failures. If the failed banks increase their scrutiny on new M&A-related loan applications, which leads to a subsequent reduction in their borrower firms' M&A activities, we should expect to observe a significant increase in the credit quality of newly originated M&A loans after the stress test failure shocks.

We collect comprehensive supervisory data on banks' internal risk ratings of newly originated M&A-related loans issued by CCAR stress test banks to borrower firms in our main DID regression sample. The internal risk rating of a loan reflects a bank's estimate of the default risk of the borrower ex-ante; thus, it is an ideal measure of loan quality from the bank's perspective. If banks enhance their scrutiny on borrowers' new M&A activities after their stress test failures, we expect a shift toward higher quality in their M&A loan origination. Indeed, we find a significant increase in the credit quality of newly originated M&A loans after banks fail the CCAR stress tests, lending empirical support to the conjecture that failed banks enhance their scrutiny on their borrowers' new risky M&A activities to increase credit quality and remedy their reputation loss.

To provide further evidence on enhanced bank scrutiny, we next investigate the effect of bank stress test failures on borrowing firms' M&A deal quality. We conjecture that after a stress test failure, the failed bank will strengthen its scrutiny on the quality of borrower firms' new M&A deals to remedy its reputation loss and increase the chance of passing future stress tests. Hence, M&A deal quality should be improved if the acquirer still receives M&A financing via raising new loan(s) from the failed bank after the stress test failure (and thus successfully goes through the extra scrutiny by the failed bank). Consistent with this conjecture, we find that the treatment effect of bank stress test failure on three-day cumulative abnormal stock returns (CAR (-1,1)) upon borrower M&A deal announcements is significantly more positive (around 3.5 percentage points higher on average) when borrowers fund their M&A deals via raising new loans from the stress test failed banks.[7]

To further enhance the identification, we examine the situation when borrowing firms finance their M&A by raising new loans from the non-stress-test-failed banks. We do not find a similar improvement in borrowers' M&A deal quality after releasing stress test outcomes. The findings from this placebo test further confirm that it is the enhanced

[7]It is important to note that around 40% of M&A deals in our sample have negative CAR (-1,1) for the acquiring firms upon deal announcements, indicating potential shareholder wealth destruction for these acquiring firms.

scrutiny from the stress test failed banks that increases the quality of borrowers' M&A deals. Finally, we document a positive effect of bank stress test failures on borrower firms' return on assets in subsequent quarters. The increased profitability is again consistent with treatment firms refraining from M&A activities that can harm their shareholders.

Our study contributes to the literature that investigates the determinants of corporate M&A activities and deal performance. It is known that firms can conduct M&A to benefit corporate executives at the expense of shareholders (e.g., Grinstein and Hribar 2004; Harford and Li 2007; Ishii and Xuan 2014) and, despite its sheer volume, M&A on average does not create shareholder value for acquirers (e.g., Andrade et al. 2001; Betton et al. 2008). On the other hand, Bharadwaj and Shivdasani (2003) shows that corporate M&A financed by banks are associated with large and significantly positive acquirer announcement stock returns. The literature also shows that better acquiring firm corporate governance (Masulis et al. 2007), more acquirer-target technological overlap (Bena and Li 2014), and greater acquiring firm organization capital (Li et al. 2018) can improve acquirer profitability from M&A. We contribute to this literature by examining corporate M&A activities under enhanced lender scrutiny following the unique bank capital regulatory shocks of stress test failures. We document that borrower firms conduct fewer but better-quality new M&A deals after their relationship banks fail a forward-looking stress test, highlighting the important role of enhancing lender scrutiny in driving corporate M&A outcomes.

This study also contributes to the classic literature on the effects of bank capital regulation. Many studies document that the transitional costs of raising regulatory capital quickly may be high, as doing so may induce banks to reallocate or shrink lending across different areas (see, e.g., Thakor 2014; Dagher et al. 2016). Irani et al. (2021) finds that weakly capitalized banks reduce loan exposure when faced with a tightening of bank capital regulation, and the effects are stronger for loans with higher capital requirements (risk weights) and at times when bank capital is more costly. Furthermore, Gropp et al. (2019) examine the impact of the 2011 capital exercise conducted by the European Banking

Authority and show that the reduced lending from the treated banks that are required to increase their capital ratios results in lower asset, investment, and sales growth for their borrower firms. On the other hand, research does highlight the positive role of bank capital regulation on banks' risk management practices (e.g., Basel Committee 2010; Acharya et al. 2018). Importantly, closely tied to the findings of our paper, Begenau (2020) demonstrates that a higher capital requirement increases banks' monitoring incentives, which improves the efficiency of banks' activities. This study is among the first to demonstrate that tightened capital requirements as a result of bank stress testing failures have a nuanced effect on corporate M&A activity.[8] The enhanced lender scrutiny linked to tighter capital constraints faced by banks can positively influence the performance of M&A deals and the overall performance of treated borrower firms. The findings of the study thus imply that the unforeseen positive spillover effect of supervisory stress tests should not be ignored.

2 Institutional Background and Data

2.1 Supervisory Stress Tests as a Cornerstone in the post-GFC Capital Regulatory Framework

Stress tests have become a cornerstone of post-crisis bank capital regulation in the United States. Unlike traditional ways of bank capital regulatory and supervisory tools, such as bank exams and Basel I and II rules that are mostly backward-looking, stress tests are the only forward-looking supervisory tool that assesses whether a bank has sufficient capital today to cover losses from future potential economic downturns (Greenwood et al. 2017). The first stress test, the SCAP test, was launched by the Federal Reserve amid the Great Recession in 2009. Its intended goal was to ensure that large U.S. banks had enough capital to withstand the large losses that occurred during the crisis. The

[8]The supervisory stress test is a proprietary process controlled by the Federal Reserve, not by the bank or its borrower firms. Considering the size of the stress test banks, the probability of a bank failing a stress test due to hidden factors related to a particular borrower firm's actions is minimal. Thus, it is a unique and ideal research setting that exploits the changes in scrutiny incentives from the bank's side that are exogenous to borrower firms.

success of the SCAP in restoring market confidence in large banks paved the way for the subsequent regular stress tests for large bank holding companies (BHCs hereafter). Since the enactment of the Dodd-Frank Act in 2010, banks have steadily increased their core capital.[9] For instance, the 18 participating BHCs in the 2019 test round have substantially increased their common equity capital by more than $680 billion (more than doubling the risk-weighted ratio) since the first round of stress tests led by the Federal Reserve in 2009.[10]

Under the Dodd-Frank Act, the Federal Reserve is mandated to assess the adequacy of banks' capital against a series of macroeconomic scenarios featuring severe adverse economic shocks, such as a sudden collapse of the equity market or a sharp rise in the unemployment rate. In particular, the Dodd-Frank Act Stress Tests (DFAST) rely on proprietary models developed by the Federal Reserve. These tests project banks' capital ratios based on revenue and losses from banks' loans, securities, trading accounts, operations, and counterparty exposures over a nine-quarter projection horizon under a standardized set of assumptions about banks' capital distribution during the projected period.[11] Starting in 2011, the Federal Reserve began conducting the annual CCAR stress test to determine the capital adequacy of large BHCs under its supervision. There are two major differences between CCAR and DFAST. First, although CCAR uses the same estimated losses and revenue numbers as in the DFAST exercise, it relies on banks' *actual* nine-quarter capital plan on capital issuances and distributions rather than the standardized assumption. Second, the minimum ratios on projected capital set by CCAR are *binding*, and BHCs that fail the test are not allowed to distribute dividends or repurchase shares as stated in their capital plans.[12]

[9] See https://www.federalreserve.gov/newsevents/speech/bernanke20100506a.htm.

[10] See https://www.federalreserve.gov/newsevents/pressreleases/bcreg20170628a.htm.

[11] In particular, DFAST assumes that banks pay out common stock dividends at the same level as in the prior year and that there are no net capital issuances.

[12] The disclosures of the DFAST and CCAR results happen almost at the same time each year (only one or two weeks apart). The Federal Reserve's decision on objecting to a BHC's capital plan is based only on the CCAR results, while there is no minimum capital requirement linked to DFAST (i.e., BHCs do not fail a DFAST test).

CCAR evaluates BHCs' capital adequacy as well as the capital planning processes, and the Federal Reserve Board can object to BHCs' capital plans on either quantitative or qualitative grounds. The quantitative exercise included in the CCAR is similar to DFAST and evaluates whether BHCs maintain sufficient capital to continue operations throughout times of economic and financial market stress. The qualitative assessment evaluates the capital planning process for the BHCs and looks into their risk management, internal controls, and governance practices, focusing on addressing the potential risks stemming from baseline and stressed operating conditions.

The Federal Reserve discloses the outcome of the stress tests annually in the CCAR report. Banks that failed the test by breaching the minimum capital threshold set in the quantitative exercise or by not passing the qualitative assessment must refrain from distributing dividends or net share repurchases as planned in the following quarter. A bank that receives an objection to its submitted capital plan either based on qualitative or quantitative assessment from the Federal Reserve Board is required to make substantial changes and resubmit its capital plans, and we define such a bank as a failed bank.[13]

Banks are included in the annual CCAR stress testing exercise if their asset size meets a certain threshold. Nineteen large banks with asset sizes over $100 billion participated in the SCAP stress test in 2009. The asset size threshold was revised to $50 billion after the enactment of the Dodd-Frank Act, and the total number of participants increased from 29 in 2011 to 33 in 2016. In this study, we include six rounds of stress test exercises covering the period from 2009 to 2016.[14] An overview of the participating BHCs and the outcomes of the stress tests across different rounds are shown in Table OA2 in the Online Appendix.

[13]Similar to a qualitative objection to the submitted capital plan, a conditional non-objection is also based on the qualitative ground. A bank that receives a conditional non-objection from the Federal Reserve Board must also address all weaknesses in its capital plan and capital planning process and resubmit a new capital plan (within six months after the decision is issued). We thus treat conditional non-objection as a qualitative objection.

[14]The 2011 CCAR test result has not been disclosed by the Federal Reserve and thus is excluded from our analysis.

2.2 *Data and Sample Construction*

Our data comprises information on firms' characteristics and their M&A activities, bank-firm lending relationships, banks' characteristics, and their participation and outcomes in the Federal Reserve's annual stress testing programs (SCAP and later CCARs). We consider firms that are included in the Center for Research in Security Prices (CRSP), Compustat, Securities Data Company (SDC) Platinum, and Thomson Reuters Loan Pricing Corporation (LPC) DealScan databases. Our sample includes quarterly data of stacked event subsamples of six rounds of stress tests that cover a period from March 2008 to September 2017. Specifically, for each stress test event, we examine three quarters before to three quarters after the test result release quarter (excluding the result release quarter) to form an event subsample. We then stack all stress test event subsamples together for the DID analysis. We consider the characteristics of the borrower firms and the stress-tested banks as well as the bank-firm relationship prior to the test result release quarter of each round of stress tests.

We collect data on borrower firms' financial characteristics from Compustat, M&A activities from SDC Platinum.[15] We further merge the data on stock returns obtained from CRSP. In particular, we include borrower firms' total assets, market-to-book equity ratio, sales growth, leverage and past stock returns. We exclude financial firms (SIC codes between 6000 and 6999).

The strength of a bank-firm relationship is a key factor influencing the credit channel that transmits shocks from banks to their borrower firms. Having a stronger lending relationship with a bank not only allows borrower firms to have better access to credit from that bank, but also makes them more sensitive to the idiosyncratic shocks to the

[15]We impose the following filters to obtain the completed M&A transactions from the Refinitiv (formerly Thomson Reuters) SDC Platinum database: (1) the M&A deal is classified as "Acquisition of Assets (AA)," "Merger (M)," or "Acquisition of Majority Interest (AM)" by the data provider; (2) the acquirer holds less than 50% of the shares of the target firm before deal announcement and ends up owning 100% of the shares of the target firm after the deal completion; (3) the deal value is at least $1 million; (4) the target firm is domiciled in the United States; and (5) the target firm is a public firm, a private firm, or a subsidiary.

bank at the same time (e.g., Berger and Udell 1995; and Chava and Purnanandam 2011). In this case, it is expected that the failed bank will need to change its lending and risk-management behavior (e.g., Acharya et al. 2018). For example, in order to reduce the default risk of its lending portfolio, the failed bank may increase its scrutiny of borrower firm projects and restructure its lending portfolio toward less risky projects. Firms that borrow more from the failed bank are then disproportionally affected by the exogenous shock of bank stress test failure.

We employ the Thomson Reuters LPC DealScan database to establish bank-firm relationships. The database has been widely used to study the strength of bank-firm relationships.[16] It contains detailed information on bank loans—mostly syndicated loans—granted to large companies. It is ideal to use the DealScan data in this context of understanding how firms' M&A activities are affected by bank stress test failures. Because many M&A deals are large in size, syndicated loans are commonly used to finance these deals in which the relationship bank leads the effort in arranging financing. Consistent with prior studies, we explore the "exclusivity" dimension of bank-firm relationships and take the repeated lending of banks to firms in the past as an indication of a strong bank-firm relationship.[17]

Specifically, one quarter prior to the result release quarter t of each round of stress tests, we review the history of all corporate loan originations to firm i in the past five years (i.e., the past 20 quarters up to the quarter before the test result release quarter) and calculate a bank-firm lending relationship variable $Lending\ relationship_{i,j,t}$ for every BHC

[16]For example, see Bharadwaj and Shivdasani (2003), Chava and Purnanandam (2011), and Norden et al. (2013).

[17]This is in line with extant studies that demonstrate that repeated contracting between firms and banks correlates with a strong bank-borrower relationship (e.g.,Schenone 2004; Bharath et al. 2007; Bharath et al. 2011; Norden et al. 2013)

j that originated at least one loan to borrower firm i:

$$Lending\ relationship_{i,j,t} = \frac{\sum_{t-5yr}^{t} Loan\ amount_{i,j}}{\sum_{t-5yr}^{t} Loan\ amount_{i}}, \tag{1}$$

Following extant studies, we consider a standard five-year look-back window to measure the bank-firm lending relationships (e.g., Bharath et al. 2007). For each borrower firm i that has syndicated loans originated from n banks in the past five years, $Lending\ relationship_{i,j,t}$ covers each relationship pair between firm i and bank j across these n banks, and the sum of the relationship measure across all the n banks for firm i will add up to one. Similar to the identification strategy in Duchin et al. (2010), we measure the bank-firm lending relationship using the five-year period (20 quarters) prior to the result release quarter of each round of stress tests and then freeze the relationship in the release quarter and afterward to avoid the endogeneity problem that banks may have started shifting lending portfolios, or borrower firms may have established new relationships with other (non-relationship) banks, after stress test results are released. We also focus on firms' lead arrangers throughout the empirical analyses, because in syndicated lending, these banks are considered the main relationship banks that collect information about borrower firms. We further aggregate the bank-firm relationship measure to the BHC level because the stress tests are conducted at the BHC level.

We obtain the data on BHCs' outcomes in SCAP and CCAR over the years from the website of the Board of Governors of the Federal Reserve System.[18] Besides the information on the Federal Reserve's evaluation of banks' capital adequacy in the passing or failing of the test, the reports also include comprehensive information on the projected capital ratios under various scenarios for each participating bank. For each round of stress tests, we measure a borrower firm's exposure to bank stress test failure by combining

[18]For example, see https://www.federalreserve.gov/supervisionreg/dfa-stress-tests.htm and https://www.federalreserve.gov/newsevents/files/bcreg20090507a1.pdf.

the information on the Federal Reserve's announcement of failed banks and the firm's relationships (captured by $Lending\ relationship_{i,j,t}$) with these banks. In particular, we include only borrower firms of banks subjected to the SCAP and/or CCAR stress tests in our analyses and classify a firm into the treatment group (the control group) if at least one of the firm's relationship banks failed the focal round of stress tests (if none of the firm's relationship banks has failed the focal round of stress tests). We use the hand-matched concordance files between the Federal Reserve's stress testing report releases and the DealScan database to match banks' stress testing outcomes with banks' lending relationships with firms ($Lending\ relationship_{i,j,t}$) based on banks' names. Given that our study investigates the effect of bank stress test failure on exposed firms' M&A activities, we compare the (treatment) firms that are exposed to banks that failed the stress test with the (control) firms that are exposed to banks that did not fail the stress test. We exclude firms that do not have a relationship with the BHCs that participated in the stress tests.

Bank characteristics are weighted at the firm level, using the bank-firm relationships prior to the result announcement quarter of each stress test. Specifically, we construct weighted bank characteristics for each firm i at quarter t by considering the relationship between firm i and its lending bank j measured prior to the release quarter T of each round of stress tests as well as the characteristics of bank j (i.e., bank loan loss provisions, capital ratio, bank cash holding, and bank size) at quarter t:

$$Bank\ char_{i,t}^{weighted} = \sum_{j=1}^{n} Lending\ relationship_{i,j,T} \times Bank\ char_{j,t}, \tag{2}$$

We then merge bank-firm relationships identified from DealScan with bank characteristics from Form FR Y-9C,[19] using hand-matched bank name concordance files aggregated at the BHC level.[20] Lastly, we merge back the constructed treatment indicator and the

[19]Federal Reserve Board, Form FR Y-9C, Consolidated Financial Statements for Holding Companies.

[20]We thank our research assistants, Yao Cheng, Shuo Geng, Rachel Hu, Songya Li, Zhaokun Li, Junjie Ren, Menglu Wang, Steven Yang, Heying Yu, Shiqing Zhang, Songjun Zhang, and Xiaoxi (Rita) Zheng, for their excellent work in identifying the bank holding companies across Y-9C and Thomson Reuters DealScan. Research assistants were divided into two groups, separately hand-matched bank names across Form FR

weighted bank characteristics with firm-level data on financial variables, M&A activities, and stock returns using the DealScan-Compustat link constructed by Michael R. Roberts and Sudheer Chava.[21] Our final regression sample consists of 2,584 unique borrower firms and 38,324 firm-quarter observations. 17,994 of these 38,324 firm-quarter observations belong to the treated firms with at least one of the firm's relationship banks failed the focal round of stress tests (i.e., *Treated* = 1).

Table 1 reports summary statistics for the main variables of our study. Table OA1 in the Online Appendix shows variable definitions and data sources. Table OA3 in the Online Appendix reports the variable correlation matrix. All dollar values are in 2016 constant dollars. In particular, Table 1 shows that the average M&A deal value is $36 million per firm-quarter and the average deal count is 0.05 per firm-quarter in our sample. The average three-day cumulative abnormal stock returns around deal announcement, CAR (-1,1), is 2%, which is comparable to the average CAR (-1,1) reported in the literature. For example, Li et al. (2018) report an average CAR (-1,1) of 1.4% for a sample of completed M&A transactions between 1984 and 2014.

[Please insert Table 1 here]

3 The Impact of Bank Stress Test Failures on Borrower Firms' M&A Activities

3.1 Bank and Borrower Firm Characteristics and Stress Test Outcomes

In our research setting, we use relationship banks' stress test failures as exogenous shocks and examine how enhanced bank scrutiny affects borrower firms' M&A activities. It is an ideal setting because it exploits the changes in bank scrutiny incentives that are exogenous

Y-9C and DealScan databases, and the authors then carefully checked and compared the matching outcomes to ensure matching quality and consistency.

[21] See http://finance.wharton.upenn.edu/ mrrobert/. Please refer to Chava and Roberts (2008) for more details on this link.

to borrower firms. Because the stress test is a proprietary process controlled by the Federal Reserve, it is very difficult even for participating banks to predict stress test failures, not to mention their borrower firms. For example, Citigroup's failing the 2014 CCAR test in qualitative assessment was entirely unexpected by its CEO.

To provide evidence of the validity of our research setting, we first investigate whether bank characteristics can predict bank stress test failures. Specifically, we regress the indicator variables, *Stress Testing Failure*, *Qualitative Objection* and *Quantitative Objection*, on characteristics of participating banks. *Qualitative (Quantitative) Objection* equals 1 if the BHC failed the focal round of stress test in qualitative (quantitative) assessment and equals 0 otherwise. *Stress Test Failure* equals 1 if either *Qualitative Objection* or *Quantitative Objection* equals 1. As shown in Table OA2, 13 out of the 29 stress test failures in our sample are qualitative objections.

Table 2 presents the results on predicting stress test failures using ex-ante bank characteristics such as bank size, bank loan loss provision, bank tier-1 common equity ratio, and bank cash holdings in bank-level analyses. We control for bank and year-quarter fixed effects.

[Please insert Table 2 here]

We find that among the ex-ante bank characteristics, only bank size can predict *Stress Testing Failure* and *Quantitative Objection*, indicating that larger banks are more likely to fail the stress tests in quantitative assessment. Importantly, none of the bank characteristics can predict stress test failure in qualitative assessment, which focuses on addressing the potential risks from baseline and stressed bank operating conditions.[22] This finding

[22]In the CCAR qualitative assessment, the Federal Reserve evaluates the extent to which the analysis underlying each BHC's capital plan captures and appropriately addresses the potential risks stemming from all activities across the consolidated institution under baseline and stressed operating conditions; the robustness of the BHC's capital planning process, including supporting risk-identification, risk measurement, and risk-management practices; the reasonableness of the assumptions and analysis underlying the capital plan; and corporate governance and internal controls over the capital-planning process, including the BHC's capital policies as approved by its board of directors. See https://www.federalreserve.gov/newsevents/press/bcreg/ccar$_2$0140326.*pdf*.

suggests that, compared with quantitative objections, qualitative objections are even more difficult to predict. This is likely because qualitative objections are not based on whether a BHC can maintain sufficient capital to continue operations in a severely adverse scenario but more subjectively on whether the Federal Reserve views a BHC as having sound risk management in its capital planning process.

3.2 Difference-in-Differences Regressions

We next investigate how bank stress test failures impact corporate borrowers' M&A activities. The empirical strategy we employ is similar to the stacked DID approach for multiple events used in Gormley and Matsa (2011). We include three quarters before to three quarters after the test result release quarter (excluding the result release quarter) to form an event subsample for each stress test event. We then stack all stress test event subsamples together and employ the DID regression framework to examine the impact of bank stress test failures on borrower M&A activities. In our setting, it is appropriate to employ the stacked DID analysis because the shocks to banks were largely exogenous and unexpected to any specific borrower firm. For instance, the models used in the CCAR quantitative assessment by the Federal Reserve are independently developed and highly confidential. Together with the opaqueness in the qualitative assessments, it is challenging even for the participant banks to predict the final results, let alone the participation banks' corporate borrowers. The assignment of treatment and control groups is thus largely exogenous to banks' corporate borrowers.

As discussed earlier, we identify treatment firms using the bank-borrower relationships prior to the test result release quarter of each stress test event subsample for the DID analysis. Once a borrower firm was classified as a treatment firm in a CCAR test round, we exclude the firm from the subsamples of the subsequent rounds of CCAR tests. We employ the following ordinary least squares (OLS) DID regression framework to identify

the effect of a relationship bank failing a stress test on borrower M&A activities:

$$M\&A\ activity_{i,t} = \beta Treated_i \times Post_t + \eta X_{i,t-1} + \omega_i + \mu_t + \varepsilon_{i,t}. \quad (3)$$

In Equation (3), the dependent variable, *M&A Activity*, is either the natural logarithm of 1 plus the total M&A deal value announced in quarter *t (Deal Value)* or the natural logarithm of 1 plus the total number of M&A deals announced in quarter *t (Deal Count)*. *Treated* equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. *Post* equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. Control variables include firm characteristics such as $firm\ size$, $market-to-book\ equity\ ratio$, *sales growth*, *leverage* and *past stock returns*, and weighted bank characteristics (according to Equation (2)) such as *bank size*, *bank loan loss provision*, $bank\ tier-1\ common\ equity\ ratio$, and *bank cash holdings*, all lagged by one quarter. Firm fixed effects are included to absorb the potential influence of any time-invariant firm heterogeneity. Year-quarter fixed effects are included to absorb the potential influence of any macro trends in M&A activities. Robust standard errors are clustered at the firm level. The results are reported in Table 3.

[Please insert Table 3 here]

It is clear that bank stress test failures have a significant dampening effect on borrower M&A activities, as the regression coefficients of the DID term, $Treated \times Post$, are negative and statistically significant at the 5% level across all regressions, both with and without control variables. The magnitude of the effect is also economically sizable. Compared with control firms, treated firms, on average, reduce their M&A deal value (M&A deal count) by \$24.4 million (0.01 deal) per quarter, which is 68% (20.8%) of the average deal value (average deal count) per quarter in the sample.[23]

[23]Note that the economic significance of the results is interpreted based on the coefficients from DID regressions using the unlogged dependent variables. Results from regressions using the unlogged dependent variables are qualitatively similar. Results are also qualitatively similar when we conduct the DID analyses using Tobit regressions instead of OLS regressions.

Furthermore, we also separately examine the impact of qualitative objections and quantitative objections on borrower firms' M&A activities using the same DID regression framework. The results are reported in Table 4. It is clear that the effect of bank stress test failure on borrower M&A activities is stronger for qualitative objections. Our results reveal that the uncovered treatment effect of bank stress test failures on borrower M&A activities derives mostly from the qualitative objection shocks. This finding is perhaps not too surprising given that compared with quantitative objections, qualitative objections are even more difficult to predict and constitute a significant exogenous shock to the failed banks (and thus their borrower firms).

[Please insert Table 4 here]

3.3 Dynamic DID Regressions

To examine whether the documented treatment effect of bank stress test failures on borrower M&A activities is driven by potential nonparallel M&A trends between the treated firms and control firms prior to the test result release, we include the test result release quarter in the sample and employ the following dynamic DID regression framework to identify the exact timing of the treatment effect:

$$\begin{aligned} M\&A\ Activity_{i,t} =& \beta Treated_i \times D_{-2,t} + \zeta Treated_i \times D_{-1,t} + \eta Treated_i \times D_{0,i} \\ &+ \tau Treated_i \times D_{1,i} + \upsilon Treated_i \times D_{2,i} + \kappa Treated_i \times D_{3,i} \\ &+ \omega_i + \mu_t + \varepsilon_{i,t}. \end{aligned} \tag{4}$$

In Equation (4), $D_{j,t}$ is an indicator that equals one if quarter t is the jth quarter relative to the test result release quarter (with the reference quarter being the third quarter prior to the test result release quarter) of the focal stress test event; other notations follow previously given definitions. Such a dynamic DID regression model enables us to examine both the existence and timing of the treatment effect. If the reduction in M&A activities is

indeed caused by bank stress test failures, then we should expect zero DID effect between the treatment firms and control firms prior to the test result release—that is, β and ζ should be insignificant. Moreover, we expect the event-quarter DID estimate, η, to be either 0 or negative (as it may take some time for the firm to respond by adjusting its M&A activity) and the post-event DID estimates, τ to κ, to be negative. The results are reported in Table 5.

[Please insert Table 5 here]

We find no difference between the changes in M&A activities of the treatment firms and the changes in M&A activities of the control firms before the stress test result release. The treatment effect is observed only at and after the test release quarter across all specifications. This finding suggests that the treatment effect on borrower M&A activities starts to occur only in the test result release quarter and persists into future quarters but does not exist in the quarters prior to the test result release. In particular, we observe the strongest treatment effect in the quarter immediately following the test result release quarter—the estimate of τ is largest in magnitude and highly significant at the 1% level in both dynamic DID regressions.

[Please insert Figure 1 here]

Figure 1 illustrates coefficient estimates on interaction terms between treatment and time dummies around stress test result release quarter.[24] The effect of borrower firms' relationship banks failing stress tests on M&A deal value is shown in Graph A, and the effect on M&A deal count is shown in Graph B. The figure clearly shows that there is no significant difference in *M&A deal value* and *Deal count* between the control and treatment group before the onset of the treatment. The treated group, compared to the control group, experienced a statistically and economically significant decline in both deal

[24]We use deal value in million dollars and deal count in numbers in the test to simplify the illustration of economic magnitude.

value and deal count only after the test result release quarter. Thus, the parallel-trends assumption for the efficacy of the DID approach is satisfied, and the documented effect of bank stress test failures on borrower M&A activities is most likely causal.

3.4 Treatment Firms that Borrowed Exclusively vs. Partially from Stress Test Failed Bank

We also investigate the impact of banks failing stress tests on borrower firms' M&A activities for treated firms that borrowed exclusively versus partially from the stress test failed banks. To do so, we further decompose the *Treated* indicator into a *Treated_Fully* indicator and a *Treated_Partially* indicator. *Treated_Fully* (*Treated_Partially*) equals one if all (at least one but not all) relationship bank(s) of the borrower firm failed the focal round of stress tests, and it equals 0 otherwise.[25] We then put these two indicators and their interaction terms with the *Post* indicator in DID regressions.

On the one hand, relative to firms that borrowed partially from stress test failed banks before the test result release, firms that borrowed exclusively from stress test failed banks before the test result release should be more heavily affected by relationship bank stress test failures and thus should decrease their M&A activities more significantly. On the other hand, larger firms tend to have more relationship banks and thus are more likely to borrow partially, rather than exclusively, from stress test failed banks. It is known that larger firms tend to conduct M&A deals with poorer quality (e.g., Moeller et al. 2004), which may be more likely to be scrutinized by stress test failed banks. Thus, it is unclear ex-ante whether the treatment effect is stronger for the fully or partially treated firms. Table OA4 in the Online Appendix reports the results.

We find that the coefficient estimates of both *Treated_Fully*$\times$*Post* and *Treated_Partially* $\times$*Post* are both significantly negative across all regressions and are of similar magnitudes. Thus, banks failing stress tests exert similar dampening effects on borrower firms' M&A

[25]Among the 17,994 observations with *Treated* = 1 in the sample, the number of observations with *Treated_Fully* = 1 is 4,940 and the number of observations with *Treated_Partially* = 1 is 13,054.

activities for treated firms that borrowed exclusively and partially from the stress test failed banks.

4 Why Do Bank Stress Test Failures Affect Borrower Firms' M&A Activities? The Enhanced Bank scrutiny Channel

4.1 Changes in Credit Quality of Newly Originated M&A Loans from the failed banks

The literature suggests that banks actively screen borrower loan applications to mitigate adverse selection and manage their lending portfolio default risk (e.g., Stiglitz and Weiss 1981; Bester 1985; Boyd and Prescott 1986; James 1987; Diamond 1991; Marquez 2002; Bharadwaj and Shivdasani 2003). Failing a stress test constitutes a significant shock to a bank, as the failed bank needs to change its distribution plan and review its lending and risk-management behavior to avoid subsequent failures and associated reputational damage. Thus, the failed bank may increase its scrutiny on borrower firms' risky investment projects, especially M&A, to reduce its loan default risk. If banks that failed stress tests increase their scrutiny strength on new M&A-related loan applications, which leads to a subsequent reduction in borrower firms' M&A activities, we expect to observe a significant increase in the credit quality for newly originated M&A loans after the stress test failure shocks. However, if the failed banks simply decrease their credit supply to all M&A deals in a non-discriminatory fashion after their failure shocks, then we would not observe any change in the credit quality of newly originated M&A loans from the failed banks.

To provide concrete evidence on the heightened bank scrutiny of borrower firms' new M&A activities after bank stress test failures, we next investigate the credit quality for newly originated loans to finance borrower firms' M&A deals. Employing the comprehensive supervisory loan-level dataset from Federal Reserve's Y-14Q H1 schedule, we examine banks' internal risk ratings on newly originated M&A loans after banks fail stress tests. As part of the effort to conduct independent CCAR stress tests, Federal Reserve requests all

U.S. banking organizations with over $50 billion in assets to report detailed information on various lending portfolios on their balance sheets. The schedule H1 has quarterly information on banks' internal risk ratings on loans, reflecting banks' assessment of credit quality. The internal risk rating categories are derived from the bank-reported raw private ratings for loans. They are converted by the Federal Reserve to a standardized rating scale (AAA, AA, A, BBB, BB, B, etc.), making these loan ratings reasonably comparable across banks.

Based on the information on borrower firms (e.g., name, location, industry, and listing status and ID) and loan type and purpose (e.g., acquisitions, capital expenditures), we identify M&A-related syndicated loans from CCAR banks to borrower firms that are identifiable from our main sample. We define a loan as M&A related if the purpose of the loan is "Acquisition and/or merger financing" or if the loan purpose is "General corporate purposes" and the loan's facility start date coincides with the window of one month before an M&A deal announcement until the M&A deal completion date.[26] We test the treatment effect of CCAR stress test failures on banks' internal risk ratings of loans newly originated to fund borrower firms' M&A activities from three quarters before to three quarters after the test result release quarter (excluding the result release quarter), using the following stacked DID regression framework:

$$Bank\ Internal\ Risk\ Rating_{i,t} = \beta Treated_i \times Post_t + \eta X_{i,t-1} + \omega_i + \mu_t + \varepsilon_{i,t}. \tag{5}$$

The dependent variable in Equation (5), *Bank Internal Risk Rating*, is the bank's internal risk rating of the M&A loan. The internal risk ratings range from 1 to 10; the higher the value, the greater the internally assessed risk of the loan and thus the lower the loan quality. *Treated* equals 1 if the bank that issues the M&A loan failed the focal round of stress tests, and it equals 0 otherwise. *Post* equals 1 if quarter t is after the test result

[26]Note that a loan with its primary or secondary purpose labeled as "General corporate purposes" can also be used to finance borrower M&A activities.

release quarter, and it equals 0 otherwise. We also control for time-varying borrower-firm and lead-arranger-bank characteristics as well as bank fixed effects and year-quarter fixed effects. The results are reported in Table 6.

[Please insert Table 6 here]

Consistent with an increase in bank scrutiny and higher loan quality for newly originated M&A loans after bank stress test failures, we find that the coefficient estimates of the DID term, $Treated \times Post$, are negative and statistically significant across different models. The results clearly suggest that banks failing CCAR results, on average, in a significant reduction in M&A loan risk rating (an increase in loan quality) by 0.42 rating grade as per Column (3), which is 9% of the average internal loan risk rating in the sample. The finding indicates a significant improvement in the quality of new M&A loan origination. This finding of an increase in loan quality for newly originated M&A loans after bank stress test failures strongly supports the conjecture that stress test failed banks significantly increase their scrutiny strength on borrower firms' risky M&A activities to reduce loan default risk.

4.2 Changes in Borrower Firms' M&A Deal Quality

If bank stress test failure leads to less borrower M&A activities through the failure, banks increase their scrutiny strength on borrower firms' new M&A projects. Such enhanced scrutiny from the failed banks should help improve the quality of new M&A deals of their borrower firms. Thus, we further examine the treatment effect of banks' failing stress tests on borrower firms' M&A deal quality. Following the M&A literature (e.g., Chen et al. 2007; Masulis et al. 2007; Gormley and Matsa 2016), we use acquiring firms' three-day CARs around deal announcements as a proxy for deal quality. When an acquiring firm announces more than one M&A deal in a quarter, we calculate the deal-value-weighted-average three-day CARs across all M&A deals that the acquiring firm announced within the quarter. In our sample, while the average three-day CAR is 2% (as shown in Table

1), a substantial portion (39.6%) of three-day CARs are negative, indicating acquiring firm shareholder value destruction for these M&A deals. The DID regression results are reported in Columns (1) to (3) of Table 7.

[Please insert Table 7 here]

Columns (1) to (3) show that the coefficient estimates of the DID term, *Bank scrutiny*×*Post*, are positive (around 0.6 to 0.8 percentage points for three-day CARs), albeit statistically insignificant. Next, we dig deeper to identify the channel of enhanced bank scrutiny by looking at the details of the acquirer's financing arrangements around the M&A deals. In particular, we construct an indicator variable, *Bank scrutiny*, which equals 1 if at least one M&A-related syndicated loan is issued for the deal from one quarter before to one quarter after the M&A deal announcement quarter, and at least one of the lead arrangers of the loan(s) is a stress test failed bank of the focal stress test round, and it equals 0 otherwise. We then use the *Bank scrutiny* indicator to interact with the *Post* indicator in the DID analysis. The idea is that stress test failed banks will strengthen their scrutiny on the quality of borrower firms' new M&A deals after the failures to increase their chance of passing future stress tests. Hence, M&A deal quality should be improved if an acquirer successfully goes through the extra scrutiny by a stress test failed bank and receives its M&A financing via raising new loan(s) from the failed bank.

Consistent with our expectation, Columns (4) to (6) of Table 7 show that the coefficient estimates of *Bank scrutiny*×*Post* are significantly positive across all three models. The results indicate that the treatment effect of bank stress test failures on borrower M&A quality is positive and around 3.5 to 3.6 percentage points when borrower firms need to finance their M&A activities via raising new bank loans from the stress test failed banks and thus receiving increased bank scrutiny on deal quality.

Furthermore, to further enhance our identification, we construct an indicator variable, *Placebo Bank scrutiny*, which equals 1 if at least one M&A-related syndicated loan is issued to the acquiring firm from one quarter before to one quarter after the M&A deal

announcement quarter, at least one of the lead arrangers of the M&A-related loan is a bank that passed the focal stress test round and none of the lead arrangers of the M&A-related loan is a stress-test-failed bank, and it equals 0 otherwise. We then similarly interact *Placebo Bank scrutiny* with *Post* in the DID analysis on acquiring firms' three-day CARs around the M&A deal announcements. The results, reported in Table 8, show that the coefficient estimates of *Placebo Bank scrutiny*$\times$*Post* are statistically insignificant across all regression models.

[Please insert Table 8 here]

In addition, in Table OA5 in the Online Appendix, we further show that the main findings remain qualitatively unchanged when we double cluster the standard errors by both firm and time. In Table OA6 in the Online Appendix, we show that the main findings remain qualitatively unchanged when we use a propensity-score-matched borrower sample for the DID analyses.[27]

Taken together, these findings suggest that it is the enhanced lender scrutiny from the stress test failed banks that improves the quality of borrowers' new M&A deals.

5 Additional Analyses

5.1 Excluding Relationship Switchers

In the earlier DID analyses, we measure the bank-firm relationship prior to the test result release quarter of each stress test event and then freeze the relationship from the result release quarter onwards. Theoretically speaking, potential relationship switching may occur after a borrower firm's relationship bank fails a stress test. The borrower firm

[27]When constructing the propensity-score-matched borrower sample, we identify pairs of borrower firms that are similar in firm characteristics such as asset size, market-to-book ratio, sales growth, leverage, past stock returns, industries (2-digit SIC code), as well as bank characteristics such as bank size, loan losses, capital ratio, and cash reserves. For every firm that borrow from stress testing failed banks, we find one neighboring firm that does not borrow from failed banks with the closest propensity score based on ex-ante firm and bank characteristics.

could switch to another bank and continue acquiring. Practically, the extant literature suggests that such behavior is less likely to occur due to the holdup problem (e.g., James 1987; Vale 1993; Petersen and Rajan 1994; Boot and Thakor 2000; and Kim et al. 2003). Relationship-based lending has lower financing costs due to better information access; thus, switching away from a relationship bank may signal potential issues at the borrowing firm and thus imply significant switching costs.[28] Given the large size and risky nature of the M&A deals, when a firm switches to non-relationship banks to finance the same M&A deal after the deal fails relationship-bank scrutiny, it can signal bad deal quality and lead to even higher financing costs. Moreover, it will bias against finding a significant negative effect of relationship bank stress test failures on borrower M&A activities should the borrowing firm be able to switch to a non-failed bank and continue its M&A activities.

Nevertheless, to address this concern, we re-estimate the DID regressions and exclude from the analyses relationship switchers that switch away from their stress test failure relationship banks when doing subsequent M&As. We define a relationship switcher as a treated firm that borrows new M&A-related loan(s) in the subsequent quarters after the focal stress test result release quarter and none of the participant lenders of the new loan(s) is a stress test failure relationship bank of the firm. The DID regression results excluding relationship switchers are reported in Table OA7.[29]

We continue to find a significantly negative effect of bank stress test failures on borrower M&A activities. Compared with the baseline results in Table 3, the coefficient estimates of $Treated \times Post$ now become larger in magnitude across all regressions and are statistically significant at the 1% level for the deal value regressions and at the 5% level for the deal count regressions, both with and without control variables. Thus, consistent with our expectation, excluding relationship switchers does not alter the main findings; if anything, it only strengthens the findings.

[28] For example, Kim et al. (2003) suggest that the costs of switching away from relationship banks are, on average, one-third of the market interest rate on loans.

[29] In total, 180 firm-quarter observations are excluded from the regression sample.

5.2 *Controlling for Borrower Firms' Previous M&A Activities*

A potential concern is that our treatment indicator may proxy for prior M&A activities of a borrower firm if the treated firm previously borrowed from the stress test failed bank to finance M&A transactions. Suppose M&A activities exhibit mean reversion (i.e., firms that have conducted M&A in the recent past are less likely to conduct M&A in the near future). In that case, the documented effect of bank stress test failures on borrower M&A activities may pick up such mean-reverting behavior in borrower M&A activities. To address this potential concern, we additionally control for the *M&A_Prior* indicator and its interaction term with the *Post* indicator in the DID regressions. M&A Prior equals 1 if the borrower firm announced at least one M&A deal in the five years before the release date of the focal round of stress test results, and it equals 0 otherwise. The results are reported in Table OA8.

We find that the regression coefficient estimates of *M&A_Prior*$\times$*Post* are indeed significantly negative across the deal value and deal count regressions, consistent with M&A mean reversion. However, the regression coefficient estimates of the DID term, *Treated*$\times$*Post*, remain significantly negative across all regressions, indicating that the documented dampening effect of bank stress test failures on borrower M&A activities is unlikely to manifest the mean-reverting behavior in borrower M&A activities.

5.3 *The Impact of Bank Stress Test Failures on Firms' M&A Deals: Cash Deals vs. Stock Involved Deals*

If heightened scrutiny by stress test failed banks leads to a reduction in borrower firms' M&A activities, we would expect a stronger treatment effect on all cash-financed M&A activities than on acquirer-stock-involved M&A activities. To investigate this conjecture, we define a dependent variable, *All Cash Deal Value (Stock Involved Deal Value)*, as the natural logarithm of the total value of all cash deals (acquirer stock involved deals) announced within a quarter plus 1. Similarly, *All Cash Deal Count (Stock Involved Deal*

Count) is the natural logarithm of the total number of all cash deals (acquirer stock involved deals) announced within a quarter plus 1. We then conduct the DID analyses using these dependent variables. The results are reported in Table 9.

[Please insert Table 9 here]

As expected, we find that the reduction in treated borrowers' M&A activities mainly concentrates on all cash-financed M&A deals but not in deals involving acquirer stocks as a payment method.

5.4 Controlling for Potential Industry Shocks

A potential concern is that a bank might fail stress tests because there is a shock to a specific industry and/or sector to which the bank lends heavily, causing the borrowers to default. Upon observing the industry shock, the other firms who borrow from the same bank and belong to the same industry would decrease their M&A activities (and their demand for bank loans to finance such activities) because they learned that it is not profitable to conduct M&A in this industry. That is, potential industry shocks may cause both the bank (that has significant exposure to the shocked industries) to fail a stress test and also cause the borrower firms in the shocked industries to decrease their M&A activities. To address such a concern, we further include borrower (2-digit SIC) industry*year-quarter fixed effects in the DID analyses. Table OA9 in the Online Appendix shows that our findings remain qualitatively unchanged when we control for borrower industry*year-quarter fixed effects.

5.5 The Impact of Bank Stress Test Failures on the Profitability of Borrower Firms

Finally, if borrower firms reduce value-destroying M&A activities after their relationship banks fail a stress test and increase scrutiny on borrowers' new investment projects, their firm profitability may improve subsequently. Thus, we also examine the treatment effect

of bank stress test failures on borrower firms' return on assets (ROA). The results are reported in Table 10.

[Please insert Table 10 here]

Consistent with our expectation, we document a significantly positive treatment effect of bank stress test failures on borrower firms' profitability in subsequent quarters. Compared with control firms, treated firms, on average, increase their ROA by 0.2-0.3 percentage points per quarter, which is significant and comparable to the sample mean ROA of 0.3 percentage points. This result is consistent with treatment firms refraining from value-destroying M&A activities that can reduce firm profitability and harm their shareholders.

6 Conclusion

This study empirically investigates the effects of banks' enhanced scrutiny efforts on corporate M&A activity after they fail Federal Reserve's forward-looking stress tests. Banks are well placed to actively screen loan applications and select high-quality projects to finance. Given that M&A is one of the largest and riskiest types of corporate investment that faces significant uncertainty and can increase the default risk of acquiring firms, it is expected that banks' scrutiny plays a vital role in determining corporate M&A outcomes. Major U.S. banks are required to participate in the supervisory stress tests conducted by the Federal Reserve after the 2007–09 Global Financial Crisis. Failing a stress test leads to reputational damage and significant constraints on the failed bank's capital distribution plan. We document that borrower firms conduct significantly fewer new M&A deals after their relationship banks fail a stress test as these banks increase scrutiny efforts of borrower firms' new M&A deals.

Consistent with a heightened scrutiny on borrower firms' new M&A activities after bank stress test failures to reduce loan risk, we find that bank stress test failures result in

a significant increase in the credit quality of newly originated M&A loans from the failed banks. We further document a positive treatment effect of bank stress test failures on borrower firms' M&A deal quality, particularly when borrower firms need to finance their M&A activities via raising new loans (and thus receiving additional bank scrutiny) from the stress test failed banks. Finally, in line with treatment firms refraining from M&A activities that can harm their shareholders, we find that these firms subsequently improve their corporate profitability.

The findings from our study support the theoretical implication of Begenau (2020) that higher bank capital requirements increase banks' monitoring incentives. We show that increased bank capital requirements as a result of stress testing failures positively affect borrower firms' M&A deal performance and the overall firm performance of treated borrowers. Our evidence also highlights the important spillover of supervisory stress tests on corporate M&A activities. Our findings are relevant to the Federal Reserve's Board decision to incorporate stress test results into ongoing capital requirements through the Stress Capital Buffer framework.[30]

[30]Federal Reserve Board recently announced the individual capital requirements for all large banks effective on October 1, 2021. See
https://www.federalreserve.gov/newsevents/pressreleases/bcreg20210805a.htm.

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Figure 1. Borrower M&A Activities around Stress Test Result Release

This figure compares the M&A deal value and deals count by borrower firms whose relationship bank(s) failed a stress test with those of borrower firms whose relationship bank(s) did not fail the stress test around the test result release quarter. The effect of firms' relationship banks failing a stress test on M&A deal value is shown in Graph A, and the effect on M&A deal count is shown in Graph B. The x-axis plots years relative to the announcement quarter that the Federal Reserve Board disclosed the stress test results. The dot plots the coefficient estimates for the interaction terms between the treatment dummy and time dummies, and the bands plot the confidence internals. The treatment dummy is one of the firms whose relationship bank(s) failed the focal stress test during the disclosure quarter and zero otherwise. We derive the effect of bank stress test failure on M&A activity from the regression coefficients of the quarter indicators in equation (4).

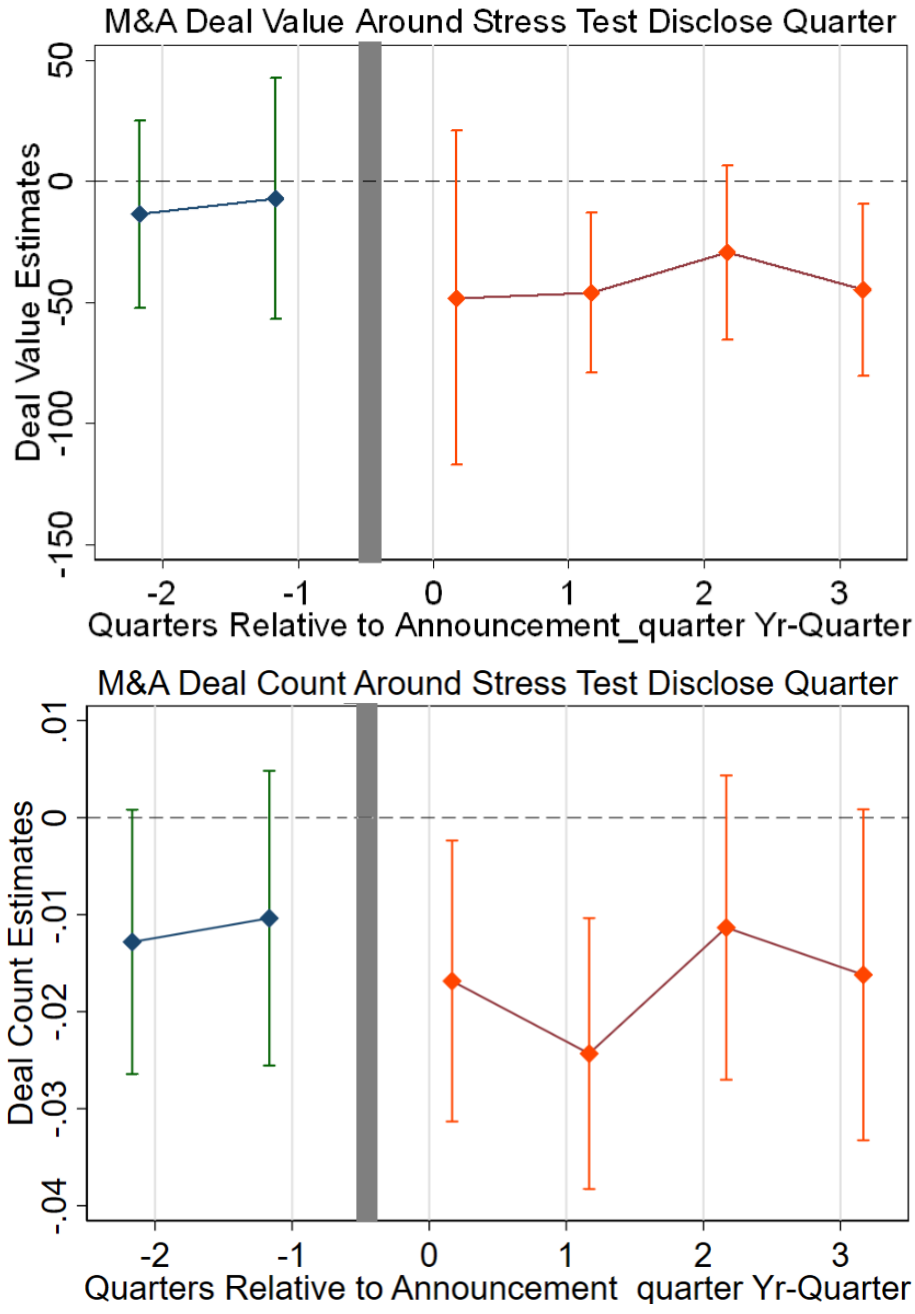

Table 1. Descriptive Statistics

This table reports the descriptive statistics of our sample. The sample covers the period from March 2008 to September 2017. All dollar values are in 2016 constant dollars. A detailed description of the variables is presented in Table OA1 in the Online Appendix. We report the means, medians, standard deviations, 25th percentiles, 75th percentiles, and the number of observations.

Variable	Mean	Median	Std. Dev.	P25	P75	N
Deal Value (in million$)	35.979	0	891.485	0	0	38,324
Deal Count	0.048	0	0.232	0	0	38,324
CAR (-1,1)	2.099	0.934	16.089	-1.221	3.672	1,249
Bank Internal Risk Rating	4.742	5	1.077	4	5	3,517
Firm Characteristics						
Firm Size (in billion$)	7.094	7.108	1.743	5.944	8.217	38,237
Market-to-Book	5.057	1.859	62.404	1.177	3.162	37,657
Sales Growth	1.086	1.016	2.872	0.956	1.084	38,279
Leverage	0.273	0.220	0.235	0.081	0.414	38,237
Past Stock Return	3.277	2.078	30.630	-10.319	14.245	38,226
ROA	0.003	0.009	0.065	0.000	0.019	38,306
Bank Characteristics						
Bank Size (in trillion $)	18.517	20.523	4.293	17.782	21.368	38324
Bank Loan Loss Provision	3.235	1.451	18.735	0.724	3.017	38324
Bank Tier-1 Common Equity Ratio	0.083	0.087	0.025	0.069	0.100	38324
Bank Cash Holding	0.014	0.013	0.006	0.011	0.017	38324

Table 2. Bank and Firm Characteristics and Stress Test Outcomes

The table reports the results of OLS regressions that investigate the relations between bank characteristics and stress test outcomes. The analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Stress test outcome indicator variables (i.e., Stress Testing Failure, Qualitative Objection and Quantitative Objection) are regressed on ex-ante characteristics of the participating banks. We control for bank and year-quarter fixed effects. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the bank level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Stress Test Failure	Qualitative Objection	Quantitative Objection
	(1)	(2)	(3)
Bank Size	1.274**	0.187	1.349***
	(0.470)	(0.475)	(0.444)
Bank Loan Loss Provision	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
Bank Tier-1 Common Equity Ratio	-1.694	0.129	-2.970
	(5.301)	(6.295)	(4.429)
Bank Cash Holding	-1.937	-4.119	1.401
	(10.344)	(7.488)	(7.618)
Year-Qtr FE & Bank FE	Yes	Yes	Yes
Number of Observations	128	113	117
Adjusted R2	0.413	0.306	0.533

Table 3. The Impact of Bank Stress Test Failures on Firms' M&A Activities

The table reports the results of OLS regressions that investigate the impact of banks' failing stress tests on borrower firms' M&A activities three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. *Treated* equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. *Post* equals 1 if quarter *t* is after the test result release quarter, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value			Deal count		
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × *Post*	-0.059**	-0.061**	-0.062**	-0.007**	-0.007**	-0.007**
	(0.025)	(0.026)	(0.026)	(0.003)	(0.003)	(0.003)
Treated	0.030	0.029	0.029	0.004	0.003	0.003
	(0.019)	(0.019)	(0.019)	(0.003)	(0.003)	(0.003)
Post	0.008	0.008	0.008	0.001	0.001	0.001
	(0.009)	(0.009)	(0.010)	(0.001)	(0.001)	(0.001)
Firm Size		-0.037	-0.037		-0.005	-0.005
		(0.024)	(0.024)		(0.004)	(0.004)
Market-to-Book		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Sales Growth		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Leverage		-0.748***	-0.746***		-0.112***	-0.112***
		(0.092)	(0.092)		(0.015)	(0.015)
Past Stock Return		0.000	0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Bank Size			-0.006			-0.001
			(0.005)			(0.001)
Bank Loan Loss Provision			-0.000			-0.000
			(0.000)			(0.000)
Bank Tier-1 Common Equity Ratio			1.060			0.090
			(1.111)			(0.169)
Bank Cash Holding			2.015			0.366
			(1.385)			(0.253)
Year-Qtr FE & Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	38,324	37,594	37,594	38,324	37,594	37,594
Adjusted R2	0.080	0.084	0.084	0.098	0.103	0.103

Table 4. Qualitative vs. Quantitative Objection and Borrower Firms' M&A Activities

The table reports the results of OLS regressions that compare the impacts of qualitative objection and quantitative objection on borrower firms' M&A activities three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Qualitative Objection equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests in qualitative assessment, and it equals 0 otherwise. Quantitative Objection equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests in quantitative assessment, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1. We control for lagged firm characteristics, relationship-weighted bank characteristics, firm fixed effects, and year-quarter fixed effects in all regressions. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value	Deal Count	Deal Value	Deal Count
	(1)	(2)	(3)	(4)
Qualitative Objection × Post	-0.070**	-0.011**		
	-0.034	(0.005)		
Qualitative Objection	0.008	0.001		
	(0.023)	(0.003)		
Quantitative Objection × Post			-0.050	-0.003
			(0.034)	(0.005)
Quantitative Objection			0.037	0.003
			(0.035)	(0.005)
Post	0.003	0.001	0.007	0.001
	(0.011)	(0.002)	(0.011)	(0.002)
Firm Size	-0.075**	-0.008	-0.026	-0.003
	(0.036)	(0.006)	(0.023)	(0.004)
Market-to-Book	-0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Sales Growth	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-1.076***	-0.160***	-0.643***	-0.096***
	(0.140)	(0.023)	(0.087)	(0.014)
Past Stock Return	0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bank Size	-0.017	-0.002	-0.006	-0.001
	(0.010)	(0.002)	(0.006)	(0.001)
Bank Loan Loss Provision	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bank Tier-1 Common Equity Ratio	2.530	0.342	1.434	0.149
	(2.130)	(0.335)	(1.294)	(0.196)
Bank Cash Holding	0.868	0.192	1.732	0.302
	(1.515)	(0.230)	(1.405)	(0.263)
Year-Qtr FE & Firm FE	Yes	Yes	Yes	Yes
Number of Observations	26,213	26,213	31,411	31,411
Adjusted R2	0.105	0.121	0.077	0.098

Table 5. The Dynamic Treatment of Bank Stress Tests Failures on Firms' M&A Activities

The table reports the results of OLS regressions that investigate the impact of a bank failing stress tests on borrower firms' M&A activities across different quarters around the release of stress test results. The dynamic difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1. The main independent variables are the interaction terms, Treated × quarter dummies. We control for lagged firm characteristics, relationship-weighted bank characteristics, firm fixed effects, and year-quarter fixed effects in all regressions. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value	Deal Count
	(1)	(2)
Treated × *D-2*	-0.050	-0.009
	(0.042)	(0.006)
Treated × *D-1*	-0.068	-0.008
	(0.044)	(0.006)
Treated × *D0*	-0.101**	-0.013**
	(0.044)	(0.006)
Treated × *D1*	-0.127***	-0.016***
	(0.045)	(0.006)
Treated × *D2*	-0.077*	-0.007
	(0.043)	(0.006)
Treated × *D3*	-0.093**	-0.015**
	(0.046)	(0.006)
Firm Controls	Yes	Yes
Bank Controls	Yes	Yes
Year-Qtr FE & Firm FE	Yes	Yes
Treated Indicator	Yes	Yes
Dummies of D-2 to D3	Yes	Yes
Number of Observations	43,902	43,902
Adjusted R2	0.079	0.100

Table 6. The Impact of Banks Failing Stress Tests on Banks' Internal Risk Ratings of Newly Originated M&A loans

The table reports the results of OLS regressions that investigate the impact of bank stress test failures on banks' internal risk ratings on newly originated M&A-related loans three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on new M&A-related loans recorded in the Y-14Q supervisory dataset, from CCAR stress test banks to borrowers that are identifiable from our main sample. The sample covers a period from May 2011 to March 2017. We define a loan as M&A related if the purpose of the loan is *"Acquisition and/or merger financing,"*, or if the loan purpose is *"General corporate purposes"* and the loan's facility start date coincides with the window of one month before an M&A deal announcement until the M&A deal completion date. Treated equals 1 if the bank that issues the M&A-related loan failed the focal round of the stress test, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. The dependent variable, Bank Internal Risk Rating, is the bank's internal risk rating of the M&A-related loan recorded on the Y-14Q supervisory dataset. The internal risk ratings range from 1 to 10; the higher the value, the greater the internally perceived risk of the loan. The ratings are derived from the bank-reported raw private ratings of banks for the borrowers and are converted by the Federal Reserve to a standardized rating scale. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the bank level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Bank Internal Risk Rating		
	(1)	(2)	(3)
Treated × *Post*	-0.295*	-0.340**	-0.419***
	(0.165)	(0.121)	(0.117)
Treated	0.118	0.200*	0.272**
	(0.093)	(0.108)	(0.118)
Post	0.059*	0.066**	0.081***
	(0.032)	(0.023)	(0.021)
Firm Size		-0.364***	-0.350***
		(0.027)	(0.023)
Market-to-Book		0.018	0.016
		(0.011)	(0.011)
Sales Growth		0.415***	0.456***
		(0.117)	(0.087)
Leverage		1.817***	1.830***
		(0.248)	(0.230)
Past Stock Return		-0.004	-0.003
		(0.002)	(0.002)
Bank Size			-0.395
			(3.077)
Bank Loan Loss Provision			-0.019
			(0.020)
Bank Tier-1 Common Equity Ratio			-14.539
			(36.109)
Bank Cash Holding			-28.952*
			(15.381)
Year-Qtr FE & Bank FE	Yes	Yes	Yes
Number of Observations	3,517	2,847	2,847
Adjusted R2	0.156	0.516	0.529

Table 7. The Impact of Bank Stress Test Failures on Acquiring Firms' Abnormal Stock Returns around M&A Deal Announcements

The table reports the results of OLS regressions that investigate the impact of bank stress test failures on acquiring firms' deal-value-weighted-average three-day cumulative abnormal stock returns surrounding the M&A deal announcements, three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. A detailed description of the variables is presented in TableOA1 in the Online Appendix. The dependent variable, CAR (-1,1), is three-day cumulative abnormal stock returns estimated using the market-adjusted model. When the acquirer conducted more than one M&A deal in a quarter, we calculate the deal-value-weighted-average CAR (-1,1) across all M&A deals that an acquirer conducted within the quarter. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. Bank scrutiny is an indicator variable that equals 1 if at least one M&A-related syndicated loan is issued to the acquiring firm from one quarter before to one quarter after the M&A deal announcement quarter and at least one of the lead arrangers of the M&A-related loan is a stress test failed bank of the focal stress test round, and it equals 0 otherwise. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	CAR (-1,1)					
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × *Post*	0.006	0.006	0.008			
	(0.012)	(0.012)	(0.012)			
Treated	0.007	0.007	0.006			
	(0.005)	(0.005)	(0.005)			
Bank scrutiny × *Post*				0.035**	0.035*	0.036*
				(0.018)	(0.018)	(0.018)
Bank scrutiny				-0.004	-0.004	-0.004
				(0.011)	(0.011)	(0.011)
Post	0.002	0.002	0.001	-0.001	-0.001	-0.001
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Firm Size		0.001	0.002		0.001	0.001
		(0.013)	(0.013)		(0.013)	(0.013)
Market-to-Book		-0.000**	-0.000**		-0.000**	-0.000**
		(0.000)	(0.000)		(0.000)	(0.000)
Sales Growth		-0.031*	-0.032*		-0.030*	-0.031*
		(0.017)	(0.017)		(0.017)	(0.017)
Leverage		0.035	0.032		0.035	0.031
		(0.054)	(0.052)		(0.054)	(0.053)
Past Stock Return		0.000	0.000		0.000	0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Bank Size			-0.002			-0.002
			(0.002)			(0.002)
Bank Loan Loss Provision			0.001*			0.001*
			(0.001)			(0.001)
Bank Tier-1 Common Equity Ratio			0.182			0.140
			(0.321)			(0.321)
Bank Cash Holding			1.240			1.441
			(1.064)			(1.083)
Year-Qtr FE & Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,249	1,229	1,229	1,249	1,229	1,229
Adjusted R2	0.884	0.888	0.888	0.884	0.888	0.888

Table 8. Placebo Bank Stress Test Failures and Acquiring Firms' Abnormal Stock Returns around M&A Deal Announcements

The table reports the results of OLS regressions that investigate the impact of bank stress test failure on acquiring firms' deal-value-weighted-average three-day cumulative abnormal stock returns surrounding the M&A deal announcements, three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. The dependent variable, CAR (-1,1), is three-day cumulative abnormal stock returns estimated using the market-adjusted model. When the acquirer conducted more than one M&A deal in a quarter, we calculate the deal-value-weighted-average CAR (-1,1) across all M&A deals that an acquirer conducted within the quarter. Placebo Bank scrutiny is an indicator variable that equals 1. If at least one M&A-related syndicated loan is issued to the acquiring firm from one quarter before to one quarter after the M&A deal announcement quarter, at least one of the lead arrangers of the M&A-related loan is a bank that passed the focal stress test round, and none of the lead arrangers of the M&A-related loan is a stress-test-failed bank, and it equals 0 otherwise. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	CAR(-1,1)		
	(1)	(2)	(3)
Placebo Bank scrutiny × *Post*	-0.003	-0.004	-0.005
	(0.009)	(0.009)	(0.008)
Placebo Bank scrutiny	-0.001	0.002	0.002
	(0.010)	(0.010)	(0.010)
Post	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)
Firm Size		0.002	0.003
		(0.013)	(0.013)
Market-to-Book		-0.000**	-0.000**
		(0.000)	(0.000)
Sales Growth		-0.031*	-0.033*
		(0.017)	(0.017)
Leverage		0.037	0.033
		(0.053)	(0.052)
Past Stock Return		0.000	0.000
		(0.000)	(0.000)
Bank Size			-0.002
			(0.002)
Bank Loan Loss Provision			0.001
			(0.001)
Bank Tier-1 Common Equity Ratio			0.153
			(0.318)
Bank Cash Holding			1.411
			(1.081)
Year-Qtr FE & Firm FE	Yes	Yes	Yes
Number of Observations	1,249	1,229	1,229
Adjusted R2	0.883	0.887	0.888

Table 9. The Impact of Bank Stress Test Failures on Firms' M&A Deals: Cash Deals vs. Stock Involved Deals

The table reports the results of OLS regressions that investigate the impact of banks' failing stress tests on borrower firms' M&A activities three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. The dependent variable, All Cash Deal Value, is the natural logarithm of the total value of all cash deals announced within a quarter plus 1; All Cash Deal Count is the natural logarithm of the total number of all cash deals announced within a quarter plus 1; Stock Involved Deal Value is the natural logarithm of the total value of acquirer stock involved deals announced within a quarter plus 1; Stock Involved Deal Count is the natural logarithm of the total number of acquirer stock involved deals announced within a quarter plus 1. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dependent Var.	All Cash Deal Value	All Cash Deal Count	Stock Involved Deal Value	Stock Involved Deal Count
	(1)	(2)	(3)	(4)
Treated × *Post*	-0.044**	-0.005*	-0.021	-0.003
	(0.019)	(0.003)	(0.019)	(0.003)
Treated	0.025*	0.003*	0.006	0.000
	(0.013)	(0.002)	(0.015)	(0.002)
Post	0.013**	0.002*	-0.006	-0.001
	(0.007)	(0.001)	(0.007)	(0.001)
Firm Size	-0.013	-0.003	-0.020	-0.002
	(0.016)	(0.003)	(0.018)	(0.003)
Market-to-Book	-0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Sales Growth	0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.389***	-0.059***	-0.373***	-0.054***
	(0.063)	(0.010)	(0.066)	(0.010)
Past Stock Return	-0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bank Size	-0.005	-0.001	-0.001	-0.000
	(0.005)	(0.001)	(0.003)	(0.000)
Bank Loan Loss Provision	-0.000	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bank Tier-1 Common Equity Ratio	1.000	0.113	-0.006	-0.028
	(0.972)	(0.149)	(0.579)	(0.082)
Bank Cash Holding	1.625*	0.282*	0.462	0.084
	(0.943)	(0.170)	(1.000)	(0.182)
Year-Qtr FE & Firm FE	Yes	Yes	Yes	Yes
Number of Observations	37,594	37,594	37,594	37,594
Adjusted R2	0.071	0.074	0.058	0.082

Table 10. The Impact of Bank Stress Test Failures on Firms' Profitability

The table reports the results of OLS regressions that investigate the impact of bank stress test failure on borrower firms' profitability three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. The dependent variable, ROA, is the firms' return on assets. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	ROA		
	(1)	(2)	(3)
Treated × *Post*	0.003**	0.002**	0.002**
	(0.001)	(0.001)	(0.001)
Treated	-0.002*	-0.002	-0.001
	(0.001)	(0.001)	(0.001)
Post	-0.000	-0.001	-0.001
	(0.001)	(0.000)	(0.000)
Firm Size		0.012***	0.012***
		(0.004)	(0.004)
Market-to-Book		0.000	0.000
		(0.000)	(0.000)
Sales Growth		-0.000	-0.000
		(0.000)	(0.000)
Leverage		-0.049***	-0.049***
		(0.007)	(0.007)
Past Stock Return		0.000***	0.000***
		(0.000)	(0.000)
Bank Size			-0.000
			(0.000)
Bank Loan Loss Provision			0.000
			(0.000)
Bank Tier-1 Common Equity Ratio			0.029
			(0.052)
Bank Cash Holding			-0.173
			(0.244)
Year-Qtr FE & Firm FE	Yes	Yes	Yes
Number of Observations	38,306	37,576	37,576
Adjusted R2	0.178	0.197	0.197

Online Appendix

Table OA1. Variable Description

Variable	Definition	Source
Deal Value	Natural logarithm of 1 plus the total dollar amount (in million$) of M&A deals announced by a firm within a quarter	SDC Platinum
Deal Count	Natural logarithm of 1 plus the total number of M&A deals announced by a firm within a quarter	SDC Platinum
CAR (-1,1)	Cumulative abnormal return (in percentage) of the acquiring firm in the (-1,1) window around the M&A deal announcement, where day 0 is the date when an M&A deal is announced; daily abnormal stock returns of the acquirer are calculated using the market-adjusted model, with the CRSP value-weighted index returns as the market returns	CRSP
Bank scrutiny	An indicator variable that equals 1 if at least one M&A-related syndicated loan is issued to the acquiring firm from one-quarter before to one-quarter after the M&A deal announcement quarter, and at least one of the lead arrangers of the focal M&A loan is a stress test failed bank of the focal stress test round, and it equals 0 otherwise. We define a loan as M&A related if the primary or secondary purpose of the loan is "Acquis. Line", "Merger", or "Takeover" or if the purpose of a loan is "Corp. Purposes" and the loan's facility start date coincides with the window of one month before an M&A deal announcement until the M&A deal completion date	SDC Platinum DealScan
Bank Internal Risk Rating	A bank's internal risk rating of the M&A-related loan recorded on the Y-14Q supervisory dataset	Y-14Q
Firm Characteristics		
Firm Size	Natural logarithm of firm market capitalization (in million$)	Compustat
Market-to-Book	The market value of assets/book value of total assets	Compustat
Sales Growth	Total sales of a fiscal quarter divided by total sales of the last fiscal quarter	Compustat
Leverage	Book value of debt / book value of assets	Compustat
Past Stock Return	The firm's buy-and-hold stock return in a fiscal quarter	CRSP
M&A Prior	An indicator variable that equals 1 if the firm announced at least one M&A deal in the five years before the release date of the focal round of stress test results, and it equals 0 otherwise	
ROA	The firm's earnings before extraordinary items scaled by book value of assets	Compustat
ROE	The firm's earnings before extraordinary items scaled by book value of equity	Compustat
Bank Characteristics		
Bank Size	Weighted average natural logarithm of total assets of firms' relationship banks	Y-9C, DealScan
Bank Loan Loss Provision	Weighted average allowance for loan and lease loss / loans and leases held for sale of firms' relationship banks	FR Y-9C, DealScan
Bank Tier-1 Common Equity Ratio	Weighted average (total equity – preferred stock) / total assets of firms' relationship banks	FR Y-9C, DealScan
Bank Cash Holding	Weighted average non-interest-bearing cash and balances / total assets of firms' relationship banks	FR Y-9C, DealScan

Table OA2. An Overview of Banks that Participated in SCAP and CCAR Stress Tests and Outcomes, 2009–16

The table provides an overview of the participating BHCs and outcomes of the stress tests across different rounds. Shaded cells indicate banks that are not eligible to participate in a focal round of stress tests. † indicates quantitative objection to the capital plan. ‡ indicates qualitative objection to the capital plan.

Bank Names	RSSD ID	SCAP 2009	CCAR 2012	CCAR 2013	CCAR 2014	CCAR 2015	CCAR 2016
Ally Financial Inc.	1562859	†	†	†			
American Express Company	1275216						
Bank of America Corporation	1073757	†				‡	
BancWest Corporation	1025608						
BB&T Corporation	1074156			‡			
BBVA Compass Bancshares, Inc.	1078529						
BMO Financial Corp.	1245415						
Capital One Financial Corporation	2277860						
Citigroup Inc.	1951350	†	†		‡		
Comerica Incorporated	1199844						
Deutsche Bank Trust Corporation	1032473					‡	‡
Discover Financial Services	3846375						
Fifth Third Bancorp	1070345	†					
HSBC North America Holdings Inc.	3232316				‡		
Huntington Bancshares Incorporated	1068191						
JPMorgan Chase & Co.	1039502			‡			
Keycorp	1068025	†					
M&T Bank Corporation	1037003						
MetLife, Inc.	2945824		†				
Morgan Stanley	2162966	†					‡
UnionBanCal Corporation/ MUFG Americas Holdings Corporation	1378434						
Northern Trust Corporation	1199611						
RBS Citizens Financial Group, Inc.	1132449				‡		
Regions Financial Corporation	3242838	†					
Santander Holdings USA, Inc.	3981856				‡	‡	‡
State Street Corporation	1111435						
SunTrust Banks, Inc.	1131787	†	†				
TD Group US Holdings LLC	3606542						
The Bank of New York Mellon Corporation	3587146						
The Goldman Sachs Group, Inc.	2380443			‡			
The PNC Financial Services Group, Inc.	1069778	†					
U.S. Bancorp	1119794						
Wells Fargo & Company	1120754	†					
Zions Bancorporation	1027004				†		

Table OA3. Correlation Matrix

The table reports correlations between different variables in our full sample. The sample consists of quarterly data covering different rounds of stress tests during the period from March 2008 to September 2017. A detailed description of the variables is presented in TableOA1 in the Online Appendix.

	Deal Value	Deal Count	Firm Size	Market-to-Book	Sales Growth	Leverage	Past Stock Return	ROA	Bank Size	Bank Loan Loss Provision	Bank Tier-1 Common Equity Ratio
Deal Count	0.933										
Firm Size	0.087	0.057									
Market-to-Book	-0.004	-0.005	0.006								
Sales Growth	-0.002	-0.003	-0.023	0.012							
Leverage	-0.035	-0.038	-0.246	0.019	0.005						
Past Stock Return	0.010	0.010	0.055	0.012	-0.002	-0.066					
ROA	0.015	0.012	0.192	0.011	-0.010	-0.178	0.105				
Bank Size	-0.031	-0.027	-0.025	-0.027	0.000	-0.227	0.011	0.054			
Bank Loan Loss Provision	0.001	0.000	0.006	-0.002	-0.001	-0.014	-0.012	-0.002	0.029		
Bank Tier-1 Common Equity Ratio	-0.011	-0.003	-0.094	-0.018	0.028	-0.249	0.023	0.071	0.698	0.038	
Bank Cash Holding	-0.013	-0.011	0.005	-0.020	-0.005	-0.099	-0.043	-0.018	0.544	0.066	0.259

Table OA4. The Impact of Bank Stress Test Failures on Firms' M&A Activities: Treated Firms that Borrowed Exclusively vs. Partially from Stress Test Failed Banks

The table reports the results of OLS regressions that investigate the impact of banks failing stress tests on borrower firms' M&A activities for treated firms that borrowed exclusively vs. partially from the stress test failed banks of the focal round, three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated Fully (Treated Partially) equals 1 if all (at least one but not all) relationship bank(s) of the firm failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value			Deal Count		
	(1)	(2)	(3)	(4)	(5)	(6)
Treated Fully × *Post*	-0.053*	-0.061**	-0.061**	-0.008*	-0.009*	-0.009*
	(0.029)	(0.030)	(0.030)	(0.005)	(0.005)	(0.005)
Treated Partially × *Post*	-0.061**	-0.061**	-0.062**	-0.007*	-0.007*	-0.007*
	(0.028)	(0.028)	(0.028)	(0.004)	(0.004)	(0.004)
Treated Fully	0.062**	0.059**	0.060**	0.010**	0.010**	0.010**
	(0.026)	(0.027)	(0.027)	(0.004)	(0.004)	(0.004)
Treated Partially	0.015	0.016	0.015	0.001	0.001	0.001
	(0.021)	(0.021)	(0.021)	(0.003)	(0.003)	(0.003)
Post	0.006	0.007	0.007	0.000	0.001	0.001
	(0.009)	(0.010)	(0.010)	(0.001)	(0.001)	(0.001)
Firm Controls						
Firm Size		-0.036	-0.036		-0.004	-0.004
		(0.024)	(0.024)		(0.004)	(0.004)
Market-to-Book		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Sales Growth		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Leverage		-0.741***	-0.739***		-0.111***	-0.111***
		(0.092)	(0.092)		(0.015)	(0.015)
Past Stock Return		0.000	0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Bank Controls						
Bank Size			-0.007			-0.001
			(0.005)			(0.001)
Bank Loan Loss Provision			-0.000			-0.000
			(0.000)			(0.000)
Bank Tier-1 Common Equity Ratio			1.139			0.104
			(1.114)			(0.170)
Bank Cash Holding			1.882			0.341
			(1.382)			(0.253)
Year-Qtr FE & Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	38,324	37,594	37,594	38,324	37,594	37,594
Adjusted R2	0.080	0.084	0.084	0.098	0.103	0.103

Table OA5. The Impact of Bank Stress Test Failures on Firms' M&A Activities: Double Clustering Standard Errors by Firm and Time

The table reports the results of OLS regressions that investigate the impact of banks' failing stress tests on borrower firms' M&A activities three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. Bank scrutiny is an indicator that equals 1 if at least one M&A-related syndicated loan is issued to the acquiring firm from one quarter before to one quarter after the M&A deal announcement quarter and at least one of the lead arrangers of the loan is a stress test failed bank of the focal stress test round, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1; CAR (-1,1) is three-day cumulative abnormal stock returns. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at both the firm and time levels. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value	Deal Count	CAR (-1,1)
	(1)	(2)	(3)
Treated × *Post*	-0.062**	-0.007*	
	(0.027)	(0.004)	
Treated	0.029	0.003	
	(0.019)	(0.003)	
Bank scrutiny × *Post*			0.036*
			(0.019)
Bank scrutiny			-0.004
			(0.011)
Post	0.008	0.001	-0.001
	(0.011)	(0.001)	(0.002)
Firm Size	-0.037	-0.005	0.001
	(0.025)	(0.004)	(0.014)
Market-to-Book	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)
Sales Growth	-0.000	-0.000	-0.031**
	(0.000)	(0.000)	(0.015)
Leverage	-0.746***	-0.112***	0.031
	(0.126)	(0.019)	(0.052)
Past Stock Return	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
Bank Size	-0.006	-0.001	-0.002
	(0.005)	(0.001)	(0.002)
Bank Loan Loss Provision	-0.000	-0.000	0.001*
	(0.000)	(0.000)	(0.001)
Bank Tier-1 Common Equity Ratio	1.060	0.090	0.140
	(1.136)	(0.171)	(0.333)
Bank Cash Holding	2.015*	0.366*	1.441
	(1.019)	(0.215)	(1.234)
Year-Qtr FE & Firm FE	Yes	Yes	Yes
Number of Observations	37,594	37,594	1,229
Adjusted R2	0.084	0.103	0.888

Table OA6. The Impact of Bank Stress Test Failures on Firms' M&A Activities: Propensity-Score-Matched Sample

The table reports the results of OLS regressions that investigate the impact of banks' failing stress tests on borrower firms' M&A activities and deal quality three quarters before to three quarters after the test result release quarter (excluding the result release quarter), using a propensity-score-matched sample. We identify pairs of firms that are similar in firm characteristics such as asset size, market-to-book ratio, sales growth, leverage, past stock returns, industries (2-digit SIC code), as well as bank characteristics such as size, loan losses, capital ratio, and cash reserves. For every firm that borrow from stress testing failed banks, we find one neighboring firm that does not borrow from failed banks with the closest propensity score based on ex-ante firm and bank characteristics. The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. Bank scrutiny is an indicator that equals 1 if at least one M&A-related syndicated loan is issued to the acquiring firm from one quarter before to one quarter after the M&A deal announcement quarter and at least one of the lead arrangers of the loan is a stress test failed bank of the focal stress test round, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1; CAR (-1,1) is three-day cumulative abnormal stock returns. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value	Deal Count	CAR (-1,1)
	(1)	(2)	(3)
Treated × Post	-0.092**	-0.013***	
	(0.036)	(0.005)	
Treated	0.058**	0.008**	
	(0.024)	(0.003)	
Bank scrutiny × Post			0.036*
			(0.019)
Bank scrutiny			-0.004
			(0.011)
Post	0.036	0.006*	-0.008**
	(0.025)	(0.003)	(0.004)
Firm Size	-0.049*	-0.007*	-0.007
	(0.026)	(0.004)	(0.014)
Market-to-Book	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Sales Growth	-0.001	-0.000	-0.026
	(0.001)	(0.000)	(0.017)
Leverage	-0.748***	-0.110***	-0.036
	(0.105)	(0.015)	(0.065)
Past Stock Return	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Bank Size	-0.003	-0.000	-0.003
	(0.006)	(0.001)	(0.002)
Bank Loan Loss Provision	-0.000	-0.000	0.001*
	(0.000)	(0.000)	(0.001)
Bank Tier-1 Common Equity Ratio	0.744	0.061	0.450
	(1.172)	(0.175)	(0.475)
Bank Cash Holding	1.620	0.329	1.984*
	(1.859)	(0.355)	(1.102)
Year-Qtr FE & Firm FE	Yes	Yes	Yes
Number of Observations	25,935	25,935	687
Adjusted R2	0.067	0.089	0.379

Table OA7. The Impact of Bank Stress Test Failures on Firms' M&A Activities: Excluding Relationship Switchers

The table reports the results of OLS regressions that investigate the impact of banks' failing stress tests on borrower firms' M&A activities three quarters before to three quarters after the test result release quarter (excluding the result release quarter). We exclude from the analyses relationship switchers that switch away from their stress test failure relationship banks when doing subsequent M&As. A relationship switcher is a treated firm that borrows new M&A-related loan(s) in the subsequent quarters after the focal stress test result release quarter, and none of the participant lenders of the new loan(s) is a stress test failure relationship bank of the firm. The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value			Deal Count		
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × *Post*	-0.067***	-0.069***	-0.069***	-0.008**	-0.008**	-0.008**
	(0.025)	(0.025)	(0.025)	(0.003)	(0.003)	(0.003)
Treated	0.026	0.026	0.025	0.003	0.003	0.003
	(0.019)	(0.019)	(0.019)	(0.003)	(0.003)	(0.003)
Post	0.007	0.007	0.007	0.001	0.001	0.001
	(0.009)	(0.009)	(0.010)	(0.001)	(0.001)	(0.001)
Firm Size		-0.046*	-0.046*		-0.005	-0.005
		(0.024)	(0.024)		(0.004)	(0.004)
Market-to-Book		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Sales Growth		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Leverage		-0.767***	-0.765***		-0.113***	-0.113***
		(0.091)	(0.091)		(0.015)	(0.015)
Past Stock Return		0.000	0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Bank Size			-0.006			-0.001
			(0.005)			(0.001)
Bank Loan Loss Provision			-0.000			-0.000
			(0.000)			(0.000)
Bank Tier-1 Common Equity Ratio			1.079			0.098
			(1.105)			(0.169)
Bank Cash Holding			1.999			0.360
			(1.385)			(0.253)
Year-Qtr FE & Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	38,144	37,416	37,416	38,144	37,416	37,416
Adjusted R2	0.081	0.086	0.086	0.100	0.105	0.105

Table OA8. The Impact of Bank Stress Test Failures on Firms' M&A Activities: Controlling for Firms' Previous M&A Activities

The table reports the results of OLS regressions that investigate the impact of banks' failing stress tests on borrower firms' M&A activities three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1. We additionally control for the M&A Prior indicator and its interaction term with the Post indicator in the regressions. M&A Prior equals 1 if the firm announced at least one M&A deal in the five years before the release date of the focal round of stress test results, and it equals 0 otherwise. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at the firm level. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value			Deal Count		
	(1)	(2)	(3)	(4)	(5)	(6)
Treated × *Post*	-0.053**	-0.054**	-0.055**	-0.006*	-0.006*	-0.006*
	(0.025)	(0.025)	(0.025)	(0.003)	(0.003)	(0.003)
Treated	0.026	0.025	0.025	0.003	0.003	0.003
	(0.019)	(0.019)	(0.019)	(0.003)	(0.003)	(0.003)
Post	0.114***	0.111***	0.111***	0.017***	0.017***	0.017***
	(0.013)	(0.013)	(0.013)	(0.002)	(0.002)	(0.002)
M&A Prior × Post	-0.248***	-0.237***	-0.237***	-0.038***	-0.037***	-0.037***
	(0.020)	(0.020)	(0.020)	(0.003)	(0.003)	(0.003)
M&A Prior	0.175***	0.187***	0.187***	0.025***	0.027***	0.027***
	(0.019)	(0.020)	(0.020)	(0.003)	(0.003)	(0.003)
Firm Size		-0.039	-0.039		-0.005	-0.005
		(0.024)	(0.024)		(0.004)	(0.004)
Market-to-Book		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Sales Growth		-0.000	-0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Leverage		-0.749***	-0.746***		-0.111***	-0.111***
		(0.092)	(0.092)		(0.015)	(0.015)
Past Stock Return		0.000	0.000		-0.000	-0.000
		(0.000)	(0.000)		(0.000)	(0.000)
Bank Size			-0.006			-0.001
			(0.005)			(0.001)
Bank Loan Loss Provision			-0.000			-0.000
			(0.000)			(0.000)
Bank Tier-1 Common Equity Ratio			1.085			0.095
			(1.108)			(0.169)
Bank Cash Holding			2.007			0.364
			(1.380)			(0.252)
Year-Qtr FE & Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	38,324	37,594	37,594	38,324	37,594	37,594
Adjusted R2	0.083	0.088	0.088	0.103	0.107	0.107

Table OA9. The Impact of Bank Stress Test Failures on Borrower Firms' M&A Activities: Controlling for Borrower Industry× time Fixed Effects

The table reports the results of OLS regressions that investigate the impact of banks' failing stress tests on borrower firms' M&A activities and deal quality three quarters before to three quarters after the test result release quarter (excluding the result release quarter). The difference-in-differences analyses are conducted on quarterly data covering the period from March 2008 to September 2017. Treated equals 1 if at least one of the firm's relationship banks failed the focal round of stress tests, and it equals 0 otherwise. Post equals 1 if quarter t is after the test result release quarter, and it equals 0 otherwise. Bank scrutiny is an indicator that equals 1 if at least one M&A-related syndicated loan is issued to the acquiring firm from one quarter before to one quarter after the M&A deal announcement quarter and at least one of the lead arrangers of the loan is a stress test failed bank of the focal stress test round, and it equals 0 otherwise. The dependent variable, Deal Value, is the natural logarithm of the total value of deals announced within a quarter plus 1; Deal Count is the natural logarithm of the total number of deals announced within a quarter plus 1; CAR (-1,1) is three-day cumulative abnormal stock returns. We control for lagged firm characteristics, relationship-weighted bank characteristics, firm fixed effects, and Borrower (2-digit DIC) Industry*year-quarter fixed effects in all regressions. A detailed description of the other variables is presented in Table OA1 in the Online Appendix. Robust standard errors (in parentheses) are clustered at both the firm and time levels. ***, **, and * correspond to statistical significance at the 1, 5, and 10 percent levels, respectively.

Dep. Var.:	Deal Value	Deal Count	CAR (-1,1)
	(1)	(2)	(3)
Treated × Post	-0.066**	-0.008**	
	(0.027)	(0.004)	
Treated	0.026	0.003	
	(0.019)	(0.003)	
Bank scrutiny × Post			0.079*
			(0.043)
Bank scrutiny			-0.002
			(0.004)
Post	0.008	0.001	-0.001
	(0.009)	(0.001)	(0.001)
Firm Size	-0.032	-0.003	0.037**
	(0.023)	(0.004)	(0.015)
Market-to-Book	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Sales Growth	-0.000	-0.000	-0.029
	(0.001)	(0.000)	(0.020)
Leverage	-0.765***	-0.111***	0.189***
	(0.089)	(0.013)	(0.066)
Past Stock Return	-0.000	-0.000	-0.001**
	(0.000)	(0.000)	(0.000)
Bank Size	-0.008	-0.001	0.001
	(0.005)	(0.001)	(0.002)
Bank Loan Loss Provision	-0.000*	-0.000	0.000
	(0.000)	(0.000)	(0.001)
Bank Tier-1 Common Equity Ratio	1.412	0.113	0.061
	(1.107)	(0.168)	(0.181)
Bank Cash Holding	2.034	0.364	-0.974
	(1.485)	(0.269)	(1.311)
Borrower Industry× Year-Qtr FE & Firm FE	Yes	Yes	Yes
Number of Observations	37,342	37,342	1,008
Adjusted R2	0.092	0.112	0.963