Depositors' Responses to Public Nonfinancial Disclosure

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Abstract

This study investigates whether depositors, with demandable debt and government protection, react to public disclosure of banks' social performance. Using public releases of banks' performance ratings for community development services, we find an increased likelihood of large deposit outflows and a decreased likelihood of large deposit inflows following negative events but no changes in deposit flows following positive events. We exclude the explanation that depositors react to bank fundamentals and find that depositors' trust in banks acts as an important channel. In addition, the deposits impacted by negative events migrate to geographically proximate high-social performance banks. Finally, we find our results hold among insured deposits and are more pronounced among sophisticated depositors. Overall, our findings suggest that public nonfinancial disclosure affects depositors' funding decisions and provide implications for bank stability.

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Depositors' Responses to Public Nonfinancial Disclosure

1. Introduction

Banks are important liquidity providers that facilitate capital allocation and economic growth. In the wake of a series of high-profile bank scandals, regulators and investors worldwide have increasingly call for banks' nonfinancial disclosure.[1] Despite the public interest and regulatory implications, the evidence is scant on the informativeness of banks' nonfinancial disclosure. In this study, we shed light on this issue by assessing whether and how depositors respond to public disclosure of banks' social performance.

We focus on depositors because deposits are banks' main funding source and tightly linked to bank lending and the real economy (Kashyap, Rajan, and Stein, 2002; Paravisini, 2008; Ivashina and Scharffstein, 2010; Cornett et al., 2011). In addition, bank-depositor information asymmetry is at the heart of the agency problems in the banks (Beatty and Liao, 2014). Further, as deposits are demandable debt, depositors may have different responses to nonfinancial disclosure compared with equity and bond investors.

We expect that the release of unexpected bank social performance affects depositors' funding decisions by updating their trust in banks. Prior studies suggest that trust, a belief that another person (or institution) will engage in beneficial, non-detrimental actions, is crucial in economic transactions (La Porta et al., 1997; Guiso, Sapienza, and Zingales, 2004; Lins, Servaes, and Tamayo, 2017). New information on a bank's negative social performance, such as its unfair lending practices and poor social responsibility activities, is likely to reduce depositors' willingness to finance the bank by decreasing their trust in banks. In contrast, new information on a bank's positive social performance may not affect depositors' decisions. This is because depositors are less likely to update their belief in the presence of good news

[1] See "Banks pressed to release more non-financial data" (*Financial Times*, July 10, 2017). Examples of well-known bank scandals include sale of toxic securities, illegal lending and accounts practices, and money laundering.

compared with bad news, as trust is more difficult to gain than to lose (Thakor and Merton, 2018). [2] Thus, we hypothesize that deposit outflows increase, and inflows decrease, following disclosure that conveys unexpected negative bank social performance.

There are also countervailing arguments why depositors may not react to the release of unexpected negative bank social performance. First, deposits are demandable debt with explicit and implicit government protections. The limited upside potential with downside risk protection can reduce depositors' incentives to discipline banks. Second, non-trivial switching and search costs may deter depositors from changing banks (Yorulmazer, 2014).

We exploit the public disclosure of the Community Reinvestment Act (CRA) ratings, which reflect the extent to which banks comply with social norms and meet the credit needs of their communities, including low- and moderate-income neighborhoods. The CRA setting has three advantages. First, as lending is the primary investment activity and accounts for 70% of bank assets (Beatty and Liao, 2014), the CRA rating captures the key dimension of banks' social performance. Second, the CRA gives regulators the power to conduct standardized evaluation on banks' social performance nationwide. Because of the government's information advantage, its release of an unexpected CRA rating (e.g., a rating downgrade or upgrade) can be viewed as an exogenous shock to depositors' trust in banks. Third, unlike other social performance measures such as the MSCI KLD ratings that are evaluated and reported annually, CRA ratings are based on banks' social performance over several years before the release. This feature allows us to isolate the effect of disclosure from performance.

The CRA requires banking supervisory agencies to conduct off-site reviews and on-site visits to examine depository institutions' lending, investment, and service performance in local communities, and to disclose a rating using a four-tiered rating system: "Outstanding,"

[2] Prior empirical results also suggest that repairing the reputation or stakeholders' trust would be very costly to firms (e.g. Farber, 2005; Charkravarithy, deHann, and Rajpopal, 2014).

"Satisfactory," "Needs to Improve," and "Substantial Noncompliance." To mitigate this concern that banks with financial constraints are more likely to perform worse in social performance, we use the rating "Needs to Improve" as the cutoff because this rating reflects a bank's failure to fulfill its community duty despite the bank has the financial resources to do so. That is, we define the disclosure that conveys unexpected negative bank social performance ("negative event") as the release of a downgrade of banks' CRA ratings from either "Outstanding" or "Satisfactory" to "Needs to Improve."

In addition to using deposit growth to capture depositors' behavior, we construct a variable indicating a large deposit outflow (inflow) if a bank's growth of total deposits is less than -5% (greater than 5%) in the fiscal quarter.[3] These measures reflect the tail risk (i.e., depositors' run-prone behavior) and large jumps in deposits. In addition, they are less likely to be confounded by factors such as macroeconomic conditions or deposit interest rates.

Our main sample consists of 692,941 bank-quarter observations of 10,711 banks from 1996 to 2017. Among these banks, 339 are our treatment banks with negative events. Our empirical test uses a difference-in-differences (DiD) design that includes a full set of group effects (i.e., bank fixed effects), a full set of time effects (i.e., year-quarter fixed effects), and various time-varying bank characteristics that affect deposit flows. We find a decrease in deposit growth, an increased likelihood of large deposit outflows, and a decreased likelihood of large deposit inflows following negative events. The effect is economically significant; a negative event increases the likelihood of a large deposit outflow by 25.81 percent and decreases the likelihood of a large deposit inflow by 15.64 percent. Our results are robust to using alternative events based on decreases of the CSR ratings from the MSCI KLD database. We also explore the asymmetric effect of the disclosure by testing the effect of unexpected positive bank social

[3] We use an absolute cutoff for ease of interpretation, but our results are qualitatively the same if we use the top and bottom five percentiles (10.28% and -5.61%) as cutoffs.

performance ("positive event") events on deposit flows. Using upgrades in CRA ratings from "Needs to Improve" to "Outstanding" or "Satisfactory" and increases in CSR performance, we find no changes in deposit flows following positive events.

We perform several additional analyses to validate our underlying assumption and address alternative explanations. We assess the parallel trends assumption underlying our DiD estimation by examining the changes in the likelihood of large deposit outflows and inflows surrounding the events. Consistent with the assumption, we find that the effect begins to show in the first year after the event. In addition, our results may be confounded by treatment banks' disadvantage in expanding and engaging in mergers and acquisitions (M&A), as regulators are required to consider CRA ratings when assessing banks' branch and M&A applications. We address this explanation by removing bank-quarter observations with a new branch or with a growth rate of total assets exceeding 10%. Our results continue to hold. Another alternative explanation is that our results reflect depositors' discipline over bank fundamentals. We mitigate this concern by rerunning our analysis after matching treatment banks with control banks based on state, year-quarter, and capital ratios. We again find results that are qualitatively similar.

Next, we perform tests to evaluate trust as the underlying mechanism. Using trust data from the General Society Survey (GSS), we validate that trust in banks in a county decreases after at least one bank receives a CRA rating downgrade to "Needs to Improve" in the county. In addition, the effect of negative events is stronger in high trust counties, consistent with the notion that depositors in high trust regions value social performance more and therefore have stronger reactions to banks' negative social performance. Also consistent with the assumption that bank social performance engenders trust, we find that bank social performance limits large deposit outflows during the recession periods (i.e., March 2001 to December 2001 and December 2007 to June 2009).

To further boost the causal inference between deposit flows and public disclosure of bank social performance, we use granular branch-level data and examine the deposit growth of other banks in the same zip code as the treatment bank. We find that banks with higher social performance experience greater deposit growth, suggesting that depositors shift funds from the treatment bank to geographically proximate banks with high social performance.

Having documented that depositors respond to the disclosure that conveys unexpected negative bank social performance, we extend our analysis to explore the heterogeneity in depositors' characteristics. We find that the result holds among insured deposits, but is somewhat sensitive to the choice of deposit flow measures for uninsured deposits. These findings suggest that the changes in depositor behavior are not due to concerns over the risk of cash flows and depositors respond to banks' nonfinancial performance despite the protection of deposit insurance. In addition, we find that the effect of the negative events is more pronounced among sophisticated depositors (based on household income and education in the county where the bank is located). This finding supports the notion that sophisticated depositors incur lower costs to acquire bank-specific information and therefore are more aware of changes in and implications of the public disclosure (Lusardi and Mitchell, 2014).

Last, we find that banks are less profitable, face higher funding costs, and have lower credit growth after negative events. These results suggest that the negative events increase banks' cost of capital that in turn decrease their profitability.[4] In addition, the negative effect on deposit-taking activities carries over to banks' lending activities as they reduce their loan supply.

We contribute to the literature in several ways. First, our study adds to the prior literature that examines the extent to which investors incorporate nonfinancial information in their firm-

[4] Public disclosure of bank social performance may also affect deposit flows by updating depositors' belief of bank future financial performance. Although our treatment firms do suffer deteriorated fundamental after the negative events, they remain financially healthy. Thus, depositors' concern on bank solvency is unlikely to explain our hypothesis.

value assessments (Hughes, 2000; Dhaliwal et al. 2011; Matsumura, Prakash, and Vera-Munoz, 2014).[5] We extend this literature to depositors, an important set of stakeholders that provides major funding for banks. Out study suggests that nonfinancial disclosure affects depositors' funding decisions, despite their demandable fixed financial claims and government protection. Although deposit insurance does not negate the effect of bank social performance disclosure, depositor sophistication magnifies this effect.

Second, we contribute to the literature on the economic consequences of bank transparency (Beatty and Liao, 2011; Bushman and Williams, 2015; Acharya and Ryan 2016; Chen et al., 2018).[6] Prior research put forth mixed views regarding whether transparency reduces banks' unique role in liquidity transformation (Beatty and Liao, 2014; Bushman, 2016; Dang et al., 2017). To the best of our knowledge, our paper is the first to provide evidence on nonfinancial disclosure and deposit flows.[7] Our findings suggest that bank nonfinancial disclosure acts as depositors' monitoring devices to update their trust that in turn affects their funding decisions and banks' resilience to adverse economic conditions. As large deposit withdrawal is critical for bank stability and banks runs are a key concern for regulators, our findings also provide policy implications on bank stability.

Finally, our study adds to the literature on the informativeness of regulatory examinations (Berger and Davies, 1998; Petrella and Resti, 2013). Banks, instrumental in facilitating capital allocation and economic growth, are heavily regulated and informationally opaque. While regulators make regular on-site reviews of banks' operation to ensure the safety and soundness of the banking system, the secrecy of supervisory ratings is much debated (Goldstein and Sapra,

[5] Hughes (2000) examines mandatory disclosure of sulfur dioxide emission (via the Department of Energy emissions database), Dhaliwal et al. (2011) examine voluntary disclosure of corporate social responsibility (via firm reporting), and Matsumura et al. (2014) examine voluntary disclosure of carbon emission (via the Carbon Disclosure Project).

[6] Transparency is "the joint output of a multifaceted system whose component parts collectively produce, gather, validate, and disseminate information to participants outside the firm" (Bushman and Williams, 2015, p. 512).

[7] A concurrent paper, Homanen (2018) investigates the effect of 2016 Dakota Access Pipeline and other bank scandals on depositors (not public disclosure) and examines the channel of social conscience (not trust).

2014). The public nature of the ratings and performance evaluation is a critical aspect of the current CRA regulation.[8] Unlike other supervisory ratings that are confidential (e.g., CAMEL ratings), regulators are required to make the CRA ratings and written evaluation publicly available. Several studies examine the effect of the CRA on banks' lending practices (e.g., Bhutta, 2011; Agarwal et al., 2012; Dou and Zou, 2018), but we are not aware of studies that investigate its informational effect on banks' stakeholders. Our study fills the gap by providing evidence that CRA disclosure influences depositors' funding decisions.

The remainder of the paper is organized as follows. Section 2 discusses institutional background and hypothesis development. Section 3 presents our data and empirical strategies. Section 4 reports the empirical results. Section 5 examines trust as the underlying mechanism and Section 6 shows additional analyses. Section 7 summarizes the study and concludes.

2. Institutional Background and Hypothesis Development

2.1 Institutional Background

The CRA, enacted by the Congress in 1977, aims to address discrimination in loans made to individuals and businesses from low and moderate-income neighborhoods.[9] The act is "intended to encourage depository institutions to help meet the credit needs of the communities in which they operate, including loans in low- and moderate-income neighborhoods, consistent with safe and sound banking operations" (12 U.S.C. 2901). The CRA instructs federal banking

[8] In introducing the CRA regulation, Federal Reserve Bank of Atlanta states "As a financial consumer and a concerned citizen, you may be interested in how well your bank or savings and loan is helping meet the credit needs of your community, including low- and moderate-income areas. In fact, by law, the performance of every bank and thrift in meeting these needs is regularly evaluated and rated, and this rating is available to the public." (see https://www.frbatlanta.org/banking-and-payments/publications/community-reinvestment-act.aspx).

[9] Sandra Braunstein, Director of Division of Consumer and Community Affair, notes in the 2008 testimony to the Congress: "Concerns about the deteriorating condition of America's cities, particularly lower-income neighborhoods, led to the enactment of the Community Reinvestment Act in 1977. Many advocates for the passage of this new law believed that this deterioration was fueled by, among other things, limited credit availability" (Braunstein, 2008).

supervisory agencies to perform periodical on-site examination and evaluations of all depository institution.[10]

The CRA examination reports and ratings were confidential until the passage of the Financial Institutions Reform, Recovery and Enforcement Act (FIRREA) in 1989. FIRREA amended the CRA to expand data collection and require public disclosure of institutions' ratings and performance evaluation. As noted by Braustein (2008), "This requirement makes CRA examinations unique among other supervisory activities, which are confidential matters."

In 1995, the CRA regulation was substantially reformed to clarify performance standards and improve transparency of the process. This reform introduced three specific performance tests: (1) a lending test, which assesses the number, dollar amount, and distribution of an institution's loans, (2) an investment test, which reviews an institution's investment portfolio, and (3) a service test, which considers retail-banking services and community development services.

Upon completion of a CRA examination, an overall CRA rating is assigned using a four-tiered rating system: "Substantial Noncompliance," "Needs to Improve," "Satisfactory," and "Outstanding." More than 80% of banks receive a "Satisfactory" rating. The disclosure is widely publicized and monitored by various nonprofit groups.[11] Appendix A, Panel A provides excerpts from the Wells Fargo's CRA performance evaluation report that explains factors contributing to the bank's "Needs to Improve" rating.

Taken together, the CRA rating reflects the extent to which banks assist community economic development by engaging in lending, investment, and services that reduces anti-

[10] The agencies include: (1) the Office of the Comptroller of the Currency (OCC), who supervises national banks, (2) the Board of Governors of the Federal Reserve System (FRB), who supervises insured state-chartered banks that are Federal Reserve members, (3) the Federal Deposit Insurance Corporation (FDIC), who supervises state-chartered, insured non-member banks, and (4) the Office of Thrift Supervision (OTS), who supervises federally-chartered saving banks and savings and loans associations.

[11] See, for example, https://www.americanbanker.com/news/from-needs-to-improve-to-outstanding-one-banks-cra-journey and https://www.learncra.com/why-should-your-nonprofit-organization-care-about-cra/.

discriminatory credit practices and meets local community needs. The rating also represents quality disclosure of banks' non-financial performance certified by the government.[12]

2.2 Hypothesis Development

Prior studies suggest that trust, central to the success of market economies, affects stock market participation and household asset allocation (Guiso et al., 2008; Giannetti and Wang, 2016; Gurun, Stoffman, and Yonker, 2017). In addition, firm-specific social performance engenders trust (Lins et al., 2017). This view is also commonly held among managers and practitioners, especially in the case of poor corporate social responsibility behaviors. For example, following the downgrade of Wells Fargo's CRA rating in 2017, an article from Bloomberg states, "A U.S. regulator said in slashing a key rating of how the bank serves communities…the findings risk further damage to Wells Fargo's reputation as executives try to rebuild customer and investor trust in the wake of an account scandal that rocked the company and its stock price last year." (See "Wells Fargo Faulted for 'Extensive' Discrimination in Review," *Bloomberg*, March 29, 2017).

Because trust is crucial in financial transactions and social performance engenders trust, we expect that the release of unexpected poor bank social performance results in a loss of depositors' trust in banks. We reason that such events are likely to increase depositors' subjective risk of being cheated and raise concerns that banks are engaging in murky business practices such as hidden fees, outright theft, or unauthorized use of information.[13] The loss of trust in turn causes depositors to withdraw their funds or refrain additional funding from the bank. We do not have a directional prediction on changes in deposits following disclosure that

[12] "Quality disclosure" is "an effort by a certification agency to systematically measure and report product quality for a nontrivial percentage of products in a market." (Dranove and Jin, 2010, p. 936).

[13] For example, subsequent to the Wells Fargo's accounts scandal, an article in Bloomberg states, "One narrative of Wells Fargo's recent scandals was that its problems stemmed from a poorly designed incentive structure. But another reason could be that the bank wasn't spending the money it should have to monitor its operations." (See "Wells Fargo Still Hasn't Dealt with Its Scandal Problem: It Takes Money to Restore Confidence and Operational Integrity," *Bloomberg*, April 13, 2018).

conveys unexpected positive bank social performance, because trust is more difficult to gain than to lose (Thakor and Merton, 2018). Consequently, our hypothesis follows:

Hypothesis: Deposit outflows increase, and inflows decrease, following disclosure that conveys unexpected negative bank social performance.

There are important reasons to justify a null result. First, depositors hold demandable debt with explicit and implicit government protections. The lack of upside potential and the protection of downside risk can reduce depositors' incentives to discipline banks. Second, non-trivial switching and search costs may deter depositors from changing banks and lead to the lock-in phenomenon in banking (Kim, Kliger, and Vale, 2003; Yorulmazer, 2014).

3. Data and Empirical Strategies

3.1. Data

We obtain quarterly financial reports and deposit data on FDIC-insured institutions from FDIC's Statistics on Depository Institutions (SDI).[14] We begin our investigation in 1996 because the CRA was substantially reformed in 1995. Our initial sample consists of all banks in the SDI database. We then exclude banks that do not have data on domestic deposits, commercial and industrial loans, or real estate loans (Berger and Bouwman, 2013). Next, we merge the sample with CRA ratings data from the Federal Financial Institutions Examination Council (FFIEC) website. After imposing the data requirements for the regression analysis, our final bank-level sample consists of 692,941 bank-quarter observations for 10,711 unique banks between 1996 and 2017.

[14] The SDI database contains historical financial data for all entities filing the Report of Condition and Income (Call Report) and Savings and Savings & Loans banks (also called thrifts) filing the OTS Thrift Financial Report (TFR). As the thrifts account roughly 10% of all depository institutions with 8.5% of all U.S. deposits, the SDI provides more comprehensive banks' financial information than Call report and is commonly used in bank deposit research (e.g., Egan et al., 2017).

3.2. Measuring Negative Events and Treatment Banks

We use CRA rating to measure bank social performance. We define *CRA* as an ordinal variable that ranges from 1 to 4, with higher values indicating better bank social performance. Because CRA examinations are conducted every three to five years, we set the value of *CRA* in non-examination year-quarters as the value in the last year-quarter when the CRA rating is released to the public.

We define a bank as a treatment bank with a negative event if its CRA rating is downgraded to "Needs to Improve," the threshold of poor ratings. This rating reflects a bank's poor performance despite having financial resources.[15] In contrast, the rating "Substantial Noncompliance" generally results from safety and soundness concerns and the ratings "Outstanding" and "Satisfactory" may reflect the availability of bank resources to invest in social responsibility activities. By using the downgrade to "Needs to Improve" to define our treatment group, we mitigate the concern that the effect is confounded by changes in bank fundamental.

The "Needs to Improve" cutoff is also commonly used in banks' financial reports when discussing bank supervision and regulation. For example, Tompkins Financial states in its 2016 10K filing (p. 11) "The Company's subsidiary banks are subject to the CRA and to certain fair lending and reporting requirements that relate to home mortgage lending.…The ratings assigned by the federal agencies are publicly disclosed. As of December 31, 2016 the Company's subsidiary banks all had ratings of satisfactory or better."

We define *Post* as a binary variable that equals one starting in the quarter in which the disclosure indicates a CRA rating downgrade to "Needs to Improve" until the quarter in which the disclosure indicates a rating upgrade from "Needs to Improve." As the exam date listed on

[15] For example, OTS states in the First FS&LA of Greene's CRA report, "This performance is considered inadequate, based on the significant resource available to the association for community development activities," which supports the "Needs to Improve" rating given to the bank.

the FFIEC website is when the exam began, we manually check the release dates for all cases with a downgrade to "Needs to Improve" (i.e., our treatment sample) and use the quarter in which the report is released as our event quarter.[16]

3.3. Measuring Depositor Behavior

To capture depositor behavior in the community, we use total deposits from individuals, partnership, and corporations. That is, our measure of total deposits excludes deposits from the U.S. government and other commercial banks. We measure deposit growth (*Deposit growth*) as the growth rate of total deposits. Following Iyer and Peydro (2011), we use a dummy variable indicating large deposit outflows to measure depositors' run-prone behavior. We construct a similar variable indicating large deposit inflows to measure large jumps in deposits. This approach has the advantage of mitigating confounding factors, such as deposit rate changes, that can affect the growth rate of deposits. Specifically, we define *Large deposit outflow* as an indicator variable equal to one if a bank-quarter's deposit growth is less than -5% and *Large deposit inflow* as an indicator variable equal to one if a bank-quarter's deposit growth is greater than 5%.

3.4. Methodology

We examine depositors' responses to the release of unexpected negative bank social performance using a generalized difference-in-differences (DiD) framework. We perform the analysis by regressing the proxies of depositor behavior on the indicator variable for the treatment bank's post period (*Post*). Because our setting involves multiple treatment groups and time periods (Wooldridge, 2007), we include a full set of group effects (i.e., bank fixed effects) and a full set of time effects (i.e., year-quarter fixed effects). The bank and year-quarter

[16] According to EEFIC, "Examination ratings are not made public until 45-60 days after the examination has concluded. Exams for smaller institutions can conclude one to two weeks after they begin (the exam date listed is when the exam began), but often go longer for small institutions. Exams for larger institutions usually go longer." (https://www.ffiec.gov/craratings/default.aspx). We identify the release quarter using the public dates and news release dates from the regulators' websites.

fixed effects identify the within-bank and within-quarter change in depositor behavior between treatment and benchmark groups when a negative event occurs. This approach implicitly takes as the benchmark group all banks without negative events in the same quarter.

We also control for several time-varying bank-level variables that may affect deposit changes (Martinez Peria, and Schmukler, 2001; Acharya and Mora, 2015). We include the following quarterly bank-level control variables, measured at lagged values: (1) *Size*, the natural logarithm of total assets, (2) *Tier1*, the Tier 1 risk-based capital ratio, (3) *NPL*, nonperforming loans (loans past due 90 days or more and nonaccruals) divided by average total assets, (4) *RE Loan*, loans secured by real estate divided by average total loans, (5) *ROA*, net income divided by average total assets, (6) *Liquidity*, liquid assets (cash, federal funds sold, reverse repos, and securities excluding MBS/ABS) divided by average total assets, and (7) *DepositRate*, interest expenses on deposits divided by the amount of deposits, expressed as % annual rate. In addition, we include state-year fixed effects to control for regional trends and business cycles.

We use a linear probability model to estimate the regression models in which the dependent variables indicate large deposit outflows and inflows. Because our model includes many fixed effects, a nonlinear model could suffer from incidental parameters problems. In addition, our sample is a large but narrow panel dataset (i.e., 10,711 banks and 88 year-quarters). Using nonlinear models with such datasets results in inconsistent estimates of the coefficients (Wooldridge, 2010). Our regression models are:

$$Large\ deposit\ outflow_{i,t} = \beta_0 + \beta_1\left(Post_{i,t}\right) + \sum \beta_m Controls_{i,t-1} + \sum \beta_n FE + \varepsilon_{i,t} \quad (1)$$

$$Large\ deposit\ inflow_{i,t} = r_0 + r_1\left(Post_{i,t}\right) + \sum r_m Controls_{i,t-1} + \sum r_n FE + \varepsilon_{i,t} \quad (2)$$

where i and t index banks and year-quarters. Our variable of interest is β_1 in Equation (1) and r_1 in Equation (2). A positive (negative) coefficient on β_1 indicates an increased (decreased)

likelihood of a large deposit outflow following the negative event. We use robust standard errors clustered by bank.

3.5. Summary Statistics

A total of 339 sample banks suffer a negative event between 1996 and 2017. Panel A of Table 1 presents the distribution of the treatment banks by the year in which the negative event occurs. We find that the events are well spread across recession periods (2001 and 2007-2009) and other periods. Panel B presents the distribution by state. Figure 1 plots the corresponding numbers, which shows that our sample is geographically dispersed. These patterns enhance the generalizability of our findings. Panel C reports the number of observations for the treatment banks and control banks. For the treatment banks, the pre-event, post-event, and reversal periods consist of 13,477, 3,056, and 7,209 bank-quarter observations.

Panel A of Table 2 presents the summary statistics of the variables used in our main analysis for the treatment and control banks. We winsorize all continuous variables at the top and bottom 1% of the distribution. The average deposit growth is 2.0% for the treatment banks and 1.9% for the control banks. The proportions of observations with large deposit outflows and large deposit inflows are 8.1% and 19.5% for the treatment banks, and 6.1% and 17.9% for the control banks. The mean (median) assets is $4.136 billion ($0.218 billion) for the treatment banks and $1.242 billion ($0.117 billion) for the control banks.[17] Panel B of Table 2 displays the Pearson's correlation coefficients between the variables. The coefficients in bold indicate significance at the 10% two-tailed level. We find that the level of CRA ratings (*CRA*) is positively associated with deposit growth (*Deposit growth*). In addition, *Post* is negatively associated with *Deposit growth* and positively associated with *Large deposit outflow.*

[17] We present the distribution of the value of assets for ease of discussion. Because the distribution is highly skewed, we use the natural logarithm of total assets to capture size in our regression.

3.6. Factors Underlying the Negative Event

Before proceeding to regression analyses, we document the factors leading to the downgrades of CRA ratings to "Needs to Improve." We perform this analysis by manually collecting the explanations on the violation of criteria from the CRA evaluation reports related to the downgrades. While the reporting format varies, bank supervisors generally evaluate an institution's CRA performance according to seven criteria: (1) fair lending or other illegal credit practices, (2) loan-to-deposit ratio, (3) lending inside assessment area, (4) borrower profile, (5) geographic distribution of loans, (6) community development, and (7) response to CRA-related complaints.

The reasons for the downgrade, summarized in Panel B of Appendix A, are well distributed across all seven criteria. We find that among banks receiving CRA downgrades to "Needs to Improve," 41% of the banks have poor dispersions of loans to low- and moderate-income communities, followed by other reasons such as poor geographical distribution of loans and poor community development investment and services. These findings provide support that the negative event reveals a bank's failure to serve their communities and to meet social norms. In addition, it is interesting to note that only 29% of the explanations involve CRA-related complaints from the community, suggesting that the public is unlikely to be aware of the treatment banks' poor performance until the CRA reports are released.

4. Results

4.1. Preliminary Evidence from Wells Fargo's Accounts Scandal

Figure 2 presents the Google Trends interest for the keyword "Wells Fargo Bank" and plots Wells Fargo's deposit growth surrounding the revelation of the accounts scandal. Wells Fargo's misconduct was first reported by the *LA Times* in 2013. The magnitude and severity of the scandal, however, did not receive much attention until September 8, 2016, when the bank paid

$185 million to settle lawsuits filed by Los Angeles City attorney and two federal regulators. As the top panel of the figure shows, the event on September 8, 2016 is the highest point of search interest.

In 2017Q2, the OCC downgraded Wells Fargo's CRA rating from "Outstanding" to "Needs to Improve" because of its discriminatory and illegal credit practices. Wells Fargo announced the downgrade on March 28, 2017. The bottom panel of Figure 2 shows that Wells Fargo's deposit growth drops from 4.0% in 2016Q4 to -6.0% in 2017Q2, much larger than the average change in deposit growth of the market. While the Wells Fargo's case is unusual in terms of the disclosure of CRA ratings,[18] it nonetheless provides preliminary evidence that public revelation of negative bank social performance triggers deposit outflows.

4.2. Depositors' Reactions to Negative Events

Panel A of Table 3 reports the results from testing the effect of negative events on depositor behavior. Columns (1) and (2) present the results for deposit growth. Column (1) is the baseline model that includes only our variable of interest and the bank and year-quarter fixed effects. Column (2) is our full regression model that includes all control variables. The coefficient on *Post* is significantly negative in both columns, indicating that deposit growth decreases following a negative event. Columns (3) through (6) follow the same pattern and report the results for our variables of interest, *Large deposit outflow* and *Large deposit inflow*. We find that the coefficients on *Post* are significantly positive in Columns (3) and (4) and significantly negative in Columns (5) and (6). These results indicate an increased likelihood of large deposit outflows and a decreased likelihood of large deposit inflows following a negative event.[19] The

[18] The release of the Wells Fargo's CRA downgrade in 2017Q2 pertains to the 2012 CRA evaluation report of Wells Fargo Bank, National Association. This evaluation report has an unusually long delay – it was not released until May 2, 2017 (see "OCC Hasn't Issued Wells Fargo's CRA Score in Eight Years, *American Banker*, October 4, 2016). Additional robustness checks (untabulated) find that our results are not sensitive to excluding Wells Fargo.

[19] In additional robustness checks (untabulated), we repeat our analyses while measuring large deposit outflows and inflows by the 10% cutoff or by the top and bottom five percentiles of the deposit growth distribution. The results are qualitatively similar.

results are also economically significant. Column (4) suggests that a negative event increases the likelihood of a large deposit outflow by 25.81 percent.[20] Similarly, Column (6) suggests that a negative event decreases the likelihood of a large deposit inflow by 15.64 percent.[21] Overall, these findings suggest that the disclosure that conveys deteriorated bank social performance increases large deposit withdrawals and suppresses deposit growth, thereby threatening the stability of the bank's funding.

For the control variables, the likelihood of large deposit outflows is greater when banks are smaller, have lower Tier 1 capital ratios, ROA, and deposit rates, have more nonperforming loans and real estate loans, and have higher liquidity ratios. The results for the likelihood of large deposit inflows are generally in the opposite direction, except for ROA and deposit rates. These findings are generally consistent with prior studies.[22]

Next, we perform analyses using alternative definitions of negative events based on the CSR ratings from the MSCI KLD database (Dhaliwal et al., 2011; Lys, Naughton, and Wang, 2015). The KLD CSR ratings can be viewed as quality disclosure of bank social responsibility performance certified by a third party. However, we caveat that it is relatively difficult to isolate the effect of disclosure from performance using this setting. In line with the literature (Kruger, 2015), we focus on KLD categories that reflect environmental and social issues: community, diversity, employee relations, environment, human rights, and product. We measure the overall CSR rating as the sum of the six individual CSR ratings, calculated as the difference between the number of strengths and the number of concerns, divided by the total number of strengths and concerns. Because the KLD data are available only for bank holding companies, we merge the data with Compustat bank-quarter data. The final KLD sample consists of 7,506 bank-

[20] 25.81% = 0.016/6.2%, where 0.016 is the coefficient reported in Column (4) of Table 3, Panel A and 6.2% is the mean of *Large deposit outflow* in Table 2, Panel A.

[21] 15.64% = 0.028/17.9%, where 0.028 is the magnitude of the coefficient reported in Column (6) of Table 3, Panel A and 17.9% is the mean of *Large deposit inflow* in Table 2, Panel A.

[22] It is somewhat surprising that the coefficient on *DepositRate* is significantly negative in Column (6). Additional analysis suggests that this unexpected sign is due to the inclusion of firm and year-quarter fixed effects.

quarter observations of 411 banks from 1995 to 2016. Among them, 228 are our treatment banks with negative changes in their overall CRS rating. In this analysis, we define *Post* as a binary variable equal to one starting from the quarter in which a bank's CSR rating decreases from the previous year. Panel B of Table 3 presents the results. The results are similar to those in Panel A.[23] Thus, our results are robust to using alternative definitions of negative events.

Panel C of Table 3 reports the results of examining the effect of positive events on deposit flows. We first examine whether an upgrade of CRA ratings in subsequent examinations can help rebuild the deposits. We perform this analysis by adding $Post_{positive}$, a binary variable equal to one from the quarter in which the CRA rating is upgraded back to "Outstanding" or "Satisfactory" from "Needs to Improve." In addition, we examine the effect of an increase in CSR ratings. We find that the coefficient on $Post_{positive}$ is insignificant at the conventional level in all columns, suggesting that disclosure related to upgrades in CRA ratings and better CSR performance does not affect depositor behavior. These findings are consistent with the notion that trust is more difficult to gain than to lose.

4.3. Robustness Checks

To assess the validity of the parallel trends assumption and the time needed for depositors to react to the events, we follow Bertrand and Mullainathan (2003) and replace the *Post* indicator with indicator variables that track the effect of an event before and after it occurs. We include the following indicator variables: *Quarter [-1, 0]*, *Quarter [1, 2]*, *Quarter [3, 4]*, and *Quarter* 5^{+}, which equal one for the quarters prior to and of the event, one and two quarters after the event, three and four quarters after the event, and five quarters after the event, respectively. Panel A of Table 4 reports the results for large deposit outflows (Column (1)) and large deposit inflows (Column (2)). First, the coefficients on *Quarter [-1, 0]* are insignificant at the conventional level. This finding, consistent with the parallel trends assumption, suggests

[23] This test does not control for real estate loans ratio because the data are not available in the Compustat dataset.

that the negative event is not anticipated by depositors. Second, Column (1) shows that the coefficients on *Quarter [3, 4]* and *Quarter 5+* are significantly positive and Column (2) shows that the coefficients on *Quarter [1, 2]*, *Quarter [3, 4]*, and *Quarter* 5^{+} are significantly negative, suggesting that the effect occurs within one year after the event.

An alternative explanation for our results is treatment banks' disadvantage in expanding and engaging in M&A activities, because good CRA performance is important for regulatory approval of branch and M&A applications. To examine this explanation, we repeat our analysis after excluding bank-quarters with new branch offices or with quarterly total asset growth exceeding 10%. The results, reported in Columns (1) and (2) of Table 4, Panel B, show that our findings remain unchanged.

Another explanation is that banks with poor fundamentals do not make good social performance investments. Thus, depositors withdraw funds due to concerns about the bank's fundamentals rather than the bank's social performance. While we use "Needs to Improve" as the cutoff and control for bank characteristics to mitigate this concern, we further address this alternative explanation by rerunning our analysis after matching treatment banks with control banks based on state, year-quarter, and capital ratio (book equity divided by total assets). We use a 1:1 matching algorithm and require the capital ratios of the matched pair to be within one standard deviation (3.93) of each other. This procedure results in 300 matched pairs of banks. The results, reported in Columns (3) and (4) of Table 4, Panel B, show that our inferences are robust.

5. Trust as the Underlying Mechanism

5.1 The Impact of Negative Events on Trust in Banks

To explore whether depositors' reaction to the negative event is due to a loss of trust, we first examine whether a CRA rating downgrade to "Needs to Improve" would undermine the regional trust in banks.

We obtain the trust data from 1994 to 2016 from the General Society Survey (GSS) conducted by the National Opinion Research Center (NORC) at the University of Chicago. The survey, used in prior studies such as Lins et al. (2017), asks a random sample of U.S. residents various questions regarding their concerns, experiences, attitudes, and practices. One of the questions relates to institutions including banks, major companies, and U.S. Supreme Court: "I am going to name some institutions in this country. As far as the people running these institutions are concerned, would you say you have a great deal of confidence, only some confidence, or hardly any confidence at all in them?" We code the response "a great deal of confidence" as 2, "only some confidence" as 1, and "hardly any confidence at all" as 0, then use the mean value of all responses to construct the trust in banks, major companies, and U.S. Supreme Court at the county-year level (*Trust in banks*, *Trust in business*, and *Trust judge*, respectively). Since this survey is conducted every other year and does not cover every county, we follow previous studies to linearly interpolate the data to fill the value in missing years (e.g. Alesina and La Ferrara, 2002).

We regress *Trust in banks* on the indicators of *Negative event in county* and *Positive event in county*. We control for various county characteristics, including *Female*, *Minority*, *Education*, *Unemployment*, *Income*, *House ownership*, and *State GPD*, as well as county and state-year fixed effects. Our variable of interest is *Negative event in county*, a binary variable equal to one for a county-year where at least one bank receives a CRA rating downgrade to "Needs to Improve." In the same manner, we construct *Positive event in county* as a binary

variable indicating a county-year where at least one bank receives a CRA rating upgrade from "Needs to Improve" to a higher rating.

Panels A and B of Table 5 report the summary statistics of key variables and regression results, respectively. Column (1) of Panel B shows that the coefficient on *Negative event in county* is significantly negative, suggesting that the negative event decreases the trust in banks in that county. Columns (2) and (3) show two falsification tests to rule out the alternative explanation that the decrease in *Trust in banks* is driven by time-varying county-wide or other characteristics. We find the negative event does not affect *Trust in business* or *Trust in judge*. These tests lend support to our argument that trust is the channel through which the negative event affects depositor behavior.

5.2 Analyses Conditional on Regional Trust

To further corroborate our inference, we use the cross-sectional variation in regional trust to explore whether the effect of the negative event is more pronounced in high-trust regions, as trust should be valued more in these regions. The county-level trust is also from the GSS, based on the question "Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?" We assign a value of 1 to the answer "can be trusted" and 0 to "can't be too careful." We take the mean value of all the responses at the county-year level and linearly interpolate the data to fill the value in missing years. We then rerun our analysis in Table 3, Panel A after partitioning the sample based on the county-level median value of *Trust*. The same size is reduced in this test due to the requirement of county-level trust data.[24]

Panel A of Table 6 reports the summary statistics of the *Trust* variable. On average, 37.8% of individuals reply that people can be trusted. Panel B presents the regression results. We find that the coefficient on *Post* is significant in the predicted direction, in the subsamples of banks

[24] The average number of responses to this question is 2,757 during our sample period.

in high trust regions and insignificant in other subsamples. These results are consistent with the notion that depositors in high trust region put more value on bank social performance and therefore react more strongly to the disclosure that conveys unexpected negative bank social performance.

5.3 The Effect of Bank Social Performance During Recessions

Prior studies suggest that trust helps firms weather adverse economic conditions (Lins et al., 2017). If bank social performance engenders trust, we expect that bank social performance mitigates deposit outflows during recession periods. Following the NBER's definition, we classify the periods from March 2001 to December 2001 and from December 2007 to June 2009 as recession periods. We then regress large deposit outflows and large deposit inflows during the recession periods on CRA_{pre} and a set of control variables measured in the quarter prior to the recession period. We capture *Large deposit outflow (inflow)* during the recession periods as a binary variable equal to one if a bank's deposit growth is less (greater) than -5% (5%) in any quarter during the recession period. We include state fixed effects to control for state-wide heterogeneity. The regression models are

$$Large\ deposit\ outflow_i = r_0 + \beta_1(CRA_{pre}) + \sum \beta_m\ Control_{pre} + \sum \beta_n FE + \varepsilon_i \quad (4)$$

$$Large\ deposit\ inflow_i = r_0 + r_1\left(CRA_{pre}\right) + \sum r_m Control_{pre} + \sum r_n FE + \varepsilon_i \quad (5)$$

where i denotes banks. Table 7 reports the regression results based on the recession period from March 2001 to December 2001 (Columns (1) and (2)) and from December 2007 to June 2009 (Columns (3) and (4)). We find that the coefficients on CRA_{pre} are significantly negative for large deposit outflows (Columns (1) and (3)), and insignificant for large deposit inflows (Columns (2) and (4)). These results, as predicted, suggest that higher bank social performance helps stabilize deposits during recessions. In sum, our results in Table 7 support the notion that

bank social performance increases depositors' trust in banks and therefore reduces concerns about banks' opportunistic behaviors.

6. Additional Analyses

6.1 Geographic Redistribution of Deposits

To further boost the causal inference between deposit flows and public disclosure of bank social performance, this section explores the geographic redistribution of deposits using branch-level data. We examine how a treatment bank's negative event affects the deposit growth of other geographically proximate banks.

We obtain branch-level deposits data from the FDIC's annual Summary of Deposits (SOD) survey dataset. For branches with missing branch-level identification codes, we identify them by their parent banks and branch-level zip codes. We aggregate the deposits of a bank's branches at the zip-code level. Our sample banks have 1.6 branches in a zip code on average. Our branch-level sample consists of 1,101,117 branch-year observations from 8,335 unique banks between 1996 and 2017.

We regress the annual growth of bank deposits at the branch level (*Deposit growth*) on a variable indicating whether a zip code is impacted by a negative event (*Zip code impacted by negative event*), the CRA rating variable (*CRA*), and their interaction term. We define *Zip code impacted by negative event* as a zip code in which at least one bank receives a downgrade to "Needs to Improve" in the year and zero otherwise. In addition, we include bank and year fixed effects. The regression model is

$$\begin{aligned} Deposit\ growth_{i,t} &= \beta_0 + \beta_1\left(Zip\ code\ impacted\ by\ neg.event_{l,t} \times CRA_{i,t}\right) \\ &+ \beta_2\left(Zip\ code\ impacted\ by\ neg.event_{l,t}\right) + \beta_3 CRA_{i,t} \\ &+ \sum \beta_n FE + \varepsilon_{i,t} \end{aligned} \quad (6)$$

where i, l, and t index banks, zip codes, and years. A positive β_1 indicates that a bank with a higher CRA rating experiences an increase in deposit growth in an affected zip code-year in which a negative event occurs. We cluster the standard errors at the zip code level.

Table 8 presents the results. Panel A shows that the mean (median) branch-level *Deposit growth* is 6.678% (3.803%). Panel B reports the regression result. Column (1) shows that the coefficient on the interaction term, *Zip code impacted by negative event* ×*CRA*, is significantly positive, suggesting that banks with higher social performance are more likely to attract deposits from a treatment bank. We note that the coefficient on *Zip code impacted by negative event* is significantly negative. One possible explanation is that in the zip code impacted by the negative event, depositors switch away from bank deposits to other safe assets such as treasury securities and other government securities. The coefficient on *CRA* is also significantly negative. While this result may seem to contradict the positive correlation between *Deposit growth* and *CRA* reported in Table 2, the results are not comparable because the coefficient on *CRA* in Table 8 captures the effect of *CRA* on a bank's branch-level deposit growth in a zip code only for the control banks (i.e., banks not impacted by negative events). Because the control banks tend to be banks with high ratings, it is possible that additional improvements from "Satisfactory" to "Outstanding" are costly and do not translate into increased deposit growth.

Column (2) of Table 8, Panel B uses an alternative specification that includes additional controls measured at the bank level. We include state-year fixed effects instead of year fixed effects to further control for heterogeneity across states over years. We find that our results remain qualitatively unchanged. In sum, the results in Table 8 suggest that the release of unexpected negative bank social performance results in a redistribution of deposits to other geographically proximate banks with higher social performance.

6.2 Analyses Conditional on Deposit Insurance

A natural question is whether our results are driven by uninsured deposits, as studies suggest that uninsured depositors are more likely to run when facing bank failures (Iyer and Puri, 2012). We perform an analysis that separately examines insured deposits and uninsured deposits. Because the SDI database does not provide a breakdown of deposit amounts from individuals, partnerships, and corporations (*Idtrni*, our current measure of total deposits), we cannot perform this analysis using our main measure of total deposits. Instead, we rely on the estimated insured deposits reported in the SDI database to capture the amount of insured deposits.[25] We then subtract the amount of insured deposits from total deposits reported in the SDI database (*Dep*) to estimate uninsured deposits. In additional analysis (untabulated), we find that the average proportion of estimated insured deposit is 83.30% in our sample of bank-quarter observations.

Table 9 reports the results. Panel A presents descriptive statistics for the additional variables used in this analysis. The mean (median) deposit growth is 1.8% (0.8%) for insured deposits and 3.0% (2.2%) for uninsured deposits. Panel B presents the regression results. We find that our results continue to hold for insured deposits. The results, however, are somewhat sensitive to the choice of deposit flow measures for uninsured deposits. While the coefficient on *Post* remains significantly negative when the dependent variable is *Deposit growth* (Column (4)) and *Large deposit inflow* (Column (6)), it becomes insignificant when the dependent variable is *Large deposit outflow* (Column (5)). In terms of economic significance, the negative event decreases insured deposit growth by 61 percent relative to the sample mean (61% =-0.011/0.018) and decreases uninsured deposit growth by 40 percent relative to the sample mean (40% = 0.012/0.03).

[25] The estimated insured deposit variable, *depins*, includes accounts of $100,000 or less (after 2006Q2, it also includes retirement accounts of $250,000 or less). In addition, from 2009Q3, the reporting threshold for non-retirement deposits increases from $100,000 to $250,000.

In sum, the analysis in Table 9 suggests that deposit insurance does not eliminate the effect of bank social performance disclosure, thereby providing further support to the notion that changes in depositor behavior are not due to concerns about banks' insolvency problems.

6.3 Analysis Conditional on Depositor Sophistication

This section examines the role of depositor sophistication. We expect the effect of the negative event to be stronger among more sophisticated depositors, because these investors incur lower information acquisition and processing costs and therefore should have a better understanding of the implication of CRA rating changes (Lusardi and Mitchell, 2014). We measure the level of depositor sophistication for a bank based on the household or population characteristics in the county where the bank is located. Studies suggest that richer and better educated households tend to be more sophisticated in financial investments (Campbell, 2006; Calvet, Campbell, and Sodini, 2009). Thus, we capture depositor sophistication using: (1) income, measured as the median household income, and (2) education, measured as the ratio of people 25 years and older who have completed college level education.

To test our prediction, we re-estimate Equations (1) and (2) after partitioning the sample by the median value of the county-level characteristics. Panels A and B of Table 10 show the results for the analysis conditional on income and education, respectively. We find that the coefficient on *Post* is significant in the subsamples of high income and education (Columns (1) and (3)), and insignificant in the other subsamples. Consistent with our prediction, the magnitude of the coefficient on *Post* is significantly larger in the high income and education subsamples. These findings collectively suggest that sophisticated depositors react more strongly to the disclosure that conveys unexpected negative bank social performance.

6.4 The Effect on Financial and Lending Performance

We focus on depositor behavior because deposits are the main funding source of banks. This section supplements our analysis by examining banks' annual financial performance and lending activities following the negative events.

We perform a DiD analysis by regressing proxies for financial performance and lending activities on the indicator variable for the treatment bank's post-event period (*Post*), controls for bank characteristics, bank fixed effects, and year fixed effects. We assess bank financial performance using the overall measures of ROA and ROE and the four components of ROA: yield on earnings assets, costs of funding, noninterest income, and noninterest expense. We assess lending activities using the growth ratio of total loans and unused commitments, divided by the sum of total assets and commitment. Appendix B provides detailed definitions of the variables. We cluster the standard errors at the bank level. The regression model is

$$Performance_{i,t} = \beta_0 + \beta_1(Post_{i,t}) + \sum\beta_m Controls_{i,t-1} + \sum\beta_n FE + \varepsilon_{i,t} \qquad (7)$$

where i and t index banks and years.

Table 11 reports the results. Panel A shows that the mean annual *ROA* and *ROE* are 0.851% and 8.660%, respectively. Panel B shows the regression analysis without bank-level controls. We find that ROA and ROE decrease (Columns (1) and (2)), *Yield on earning assets* decreases (Column (3)), *Cost of funding* increases (Column (4)), and *Growth of credit* decreases (Column (7)) after the negative event. Panel C presents the results after further controlling for bank characteristics and state-year fixed effects. Our conclusions remain unchanged. Although our treatment firms remain financially sound,[26] the effect is economically significant. For example, Panel B suggest that the negative event decreases annual bank ROA and ROE by 18.21 percent

[26] Additional analysis (untabulated) finds that the average Tier 1 capital ratio and ROA for our treatment firms during the post period is 23.7% and 0.5%.

and 20.73 percent, relative to the respective sample mean. Collectively, these results suggest that bank's financial performance and credit growth deteriorate after the release of unexpected negative bank social performance.

7. Conclusion

This study examines depositors' response to public disclosure of banks' social performance. Our analysis takes advantage of the idiosyncratic shocks on depositors' perception of bank social performance caused by a CRA rating downgrade to "Needs to Improve" and uses a staggered difference-in-differences design to mitigate endogeneity concerns.

We find that the release of unexpected negative bank social performance increases the likelihood of large deposit outflows and decreases the likelihood of large deposit inflows. The results are robust to using alternative events based on the KLD CSR ratings. Further investigation suggests that the negative events result in a redistribution of deposits to geographically proximate banks with better social performance. In addition, the effect of the negative events holds among insured deposits and is primary driven by sophisticate depositors. Banks experience a decrease in financial performance and lending activities following the negative events. Overall, our study contributes to the literature by documenting the usefulness of nonfinancial disclosure and examining its economic consequence in the banking industry.

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Appendix A
Sample CRA Performance Evaluation Reports and Summary of the Reasons for Downgrades

Panel A: Excerpts of Wells Fargo Bank, National Association's CRA Performance Evaluation Report, Released on May 2, 2017

Institution's CRA Rating: This institution is rated **Needs to Improve.**

The major factors that support this rating include the following:
Fair Lending and Other Illegal Credit Practices
- The bank's overall CRA Performance Evaluation rating was lowered from "Outstanding" to "Needs to Improve" as a result of the extent and egregious nature of the evidence of discriminatory and illegal credit practices…

Lending Test
- WFB demonstrated lending levels that reflected excellent responsiveness to the credit needs in the majority of assessment areas (AAs)...
- WFB's geographic distribution and distribution by income of the borrower or revenue of the farm or business has been generally good…
- WFB's volume and nature of community development (CD) lending had a significantly positive influence on the Lending Test performance...

Investment Test
- WFB's performance, as measured primarily by volume of investments, was excellent in 35 of the 54 rating areas.
- Community contacts indicated that WFB was particularly responsive to the identified CD needs in many of its AAs...

Service Test
- In the majority of WFB's rating areas, WFB's retail delivery systems, including branches and ATMs, are readily accessible to all portions of the bank's AAs…

Panel B: Summary of Reasons for CRA Ratings Downgraded to "Needs to Improve" (N=379) [27]

	Reason	N	%
(1)	Unfair lending or illegal credit practice	61	16%
(2)	Loan-to-deposit ratio is unreasonably low	129	34%
(3)	A majority of lending are outside the assessment area	111	29%
(4)	Dispersion to low- and moderate-income (LMI) geographies is poor	155	41%
(5)	Geographic distribution of loans is poor	139	37%
(6)	Poor level of community development investment and services	112	30%
(7)	CRA-related complaints received from the community	109	29%

[27] The sample size (379) is greater than the sample size in our main tests (339) because we impose data requirement for variables used in our regression analysis.

Appendix B
Variable Definitions

Deposit-related measures	
Deposit growth	The quarterly growth ratio of deposits, based on the total deposit of individuals, partnerships, and corporations. Source: FDIC's Statistics on Depository Institutions (SDI).
Large deposit outflow	A binary variable equal to one if the quarterly deposit growth is less than -5% and zero otherwise.
Large deposit inflow	A binary variable equal to one if the quarterly deposit growth is larger than 5% and zero otherwise.
Social performance measures and events	
CRA	An ordinal variable that ranges from 1 to 4, with the values of 1 to 4 corresponding to CRA rating "Substantial Noncompliance," "Needs to Improve," "Satisfactory," and "Outstanding." Source: Federal Financial Institutions Examination Council (FFIEC).
CSR rating	The sum of the six individual CSR ratings (including community, diversity, employee relations, environment, human rights, and product), calculated as the difference between the number of strengths and the number of concerns, divided by the total number of strengths and concerns.
Post	A binary variable equal to one starting in the quarter in which a negative event concerned with bank social performance occurs and zero otherwise. Negative events include: 1) the release of a bank's CRA rating downgraded to "Needs to Improve," and 2) a bank holding company's KLD rating decreases from previous period. For CRA rating downgrade, the binary variable remains one until the rating reverts to a higher level in subsequent examination.
$Post_{positive}$	A binary variable equal to one starting in the quarter in which a bank's CRA rating is upgraded from "Needs to Improve" or a bank holding company's KLD rating increases from previous period.
Negative event in county	A binary variable equal to one for a county where at least one bank receives a CRA rating downgrade to "Needs to Improve."
Positive event in county	A binary variable equal to one for a county where at least one bank receives a CRA rating upgrade from "Needs to Improve."
Zip code impacted by negative event	A binary variable equal to one if the branch is in a zip code where at least one branch's parent bank receives a CRA rating downgrade to "Needs to Improve" and zero otherwise.
Controls	
Size	Log of total assets in thousand. Source: FDIC SDI.
Tier1	Tier 1 risk-based capital ratio. Source: FDIC SDI.
NPL	Nonperforming loans (loan past due 90 days or more and nonaccruals) divided by the average total assets. Source: FDIC SDI.
RE loans	Loans secured by real estate divided by total loans. Source: FDIC SDI.
ROA	Net income divided by average total assets. Source: FDIC SDI.
Liquidity	Liquid assets divided by average total assets, where liquid assets are cash, federal funds sold, reverse repos, and securities excluding MBS/ABS. Source: FDIC SDI.

Appendix B, continued

Controls	
DepositRate	Interest expenses on deposits divided by quarterly amount of deposits (adjusted year-to-date reporting to within quarter and expressed as % annual rate). Source: FDIC SDI.
Partitioning variables	
Insured deposit	The estimated amount of FDIC insured deposit reported in FDIC SDI.
Uninsured deposit	The difference between total deposits and insured deposits.
Income	The median household income in the county where the bank is located. Source: U.S. census.
Education	The ratio of people 25 years and older who have completed college level education, in the county where the bank is located. Source: U.S. census.
Trust	The mean value of all the respondents' answer in the question whether people can be trusted at county-year level, with values of 1 and 0 corresponding to "can trust" and "can't be too careful." Source: GSS.
Other county-level variables	
Trust in banks	The mean value of all the respondents' confidence level in banking and financial institutions at county-year level, with values of 2, 1, and 0 corresponding to "a great deal of confidence," "only some confidence," and "hardly any confidence at all." Source: GSS.
Trust in business	The mean value of all the respondents' confidence level in major companies at county-year level. Source: GSS.
Trust in judge	The mean value of all the respondents' confidence level in U.S. supreme court at county-year level. Source: GSS.
Female	The ratio of female in the county. Source: U.S. census.
Minority	The ratio of minority population in the county. Source: U.S. census.
Unemployment	The unemployment rate in the county. Source: U.S. census.
House ownership	The ratio of household who own the house in the county. Source: U.S. census.
Other performance measures	
ROA	Net income divided by average total assets (in %). Source: FDIC SDI.
ROE	Net income divided by average total equity (in %). Source: FDIC SDI.
Yield on earning assets	Total interest income divided by average earning assets (in %). Source: FDIC SDI.
Cost of funding	Total interest expense divided by average earning assets (in %). Source: FDIC SDI.
Noninterest income	Income derived from bank services and sources other than interest bearing assets divided by average total assets (in %). Source: FDIC SDI.
Noninterest expense	Salaries and employee benefits, expenses of premises and fixed assets, and other noninterest expenses divided by average total assets (in %). Source: FDIC SDI.
Growth of credit	Annual growth ratio of total loans and unused commitments divided by sum of beginning of period assets and total commitments.

Figure 1
Distribution of Banks with Negative Events by State
This figure plots the number of banks with negative events as measured by the release of CRA rating downgrades to "Needs to Improve" between 1996 and 2017.

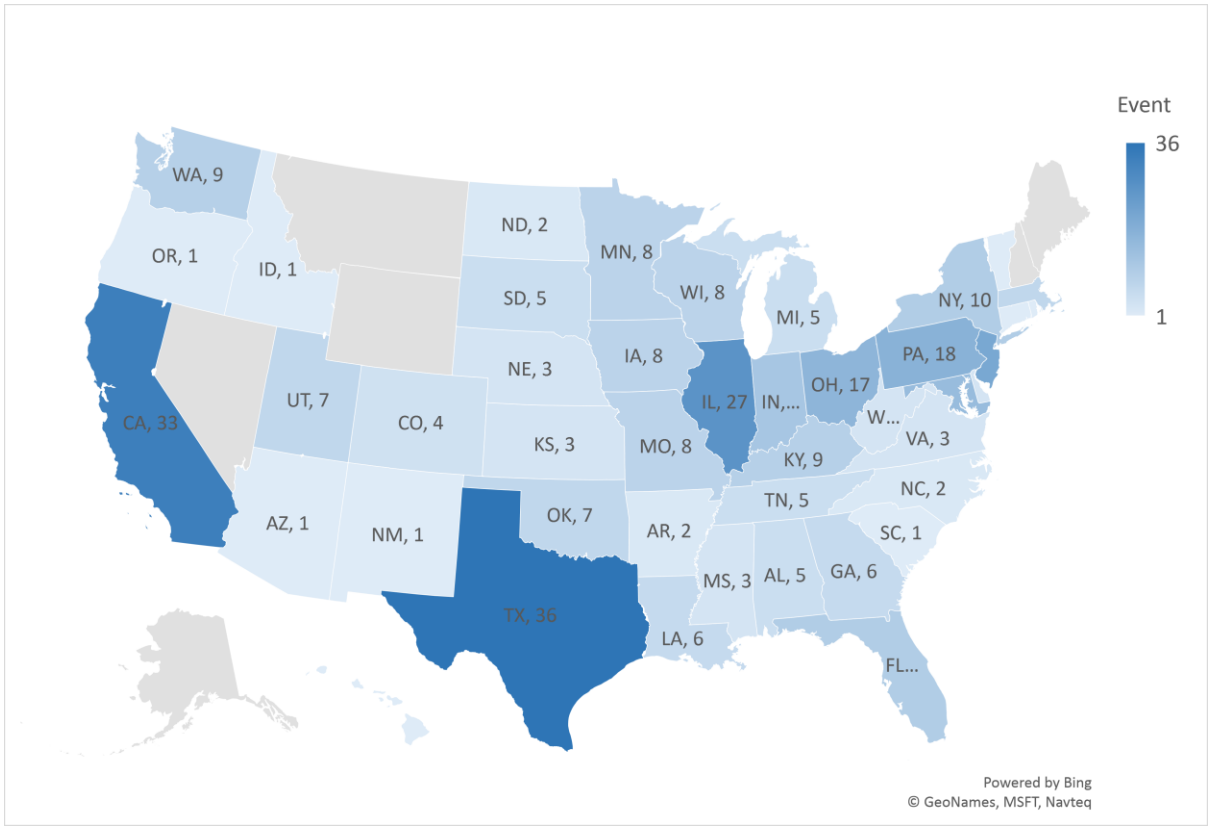

Figure 2
Google Trends for "Wells Fargo Bank" and Deposit Growth Rate Surrounding the Revelation of Wells Fargo Bank's Accounts Scandal and Release of CRA Reports

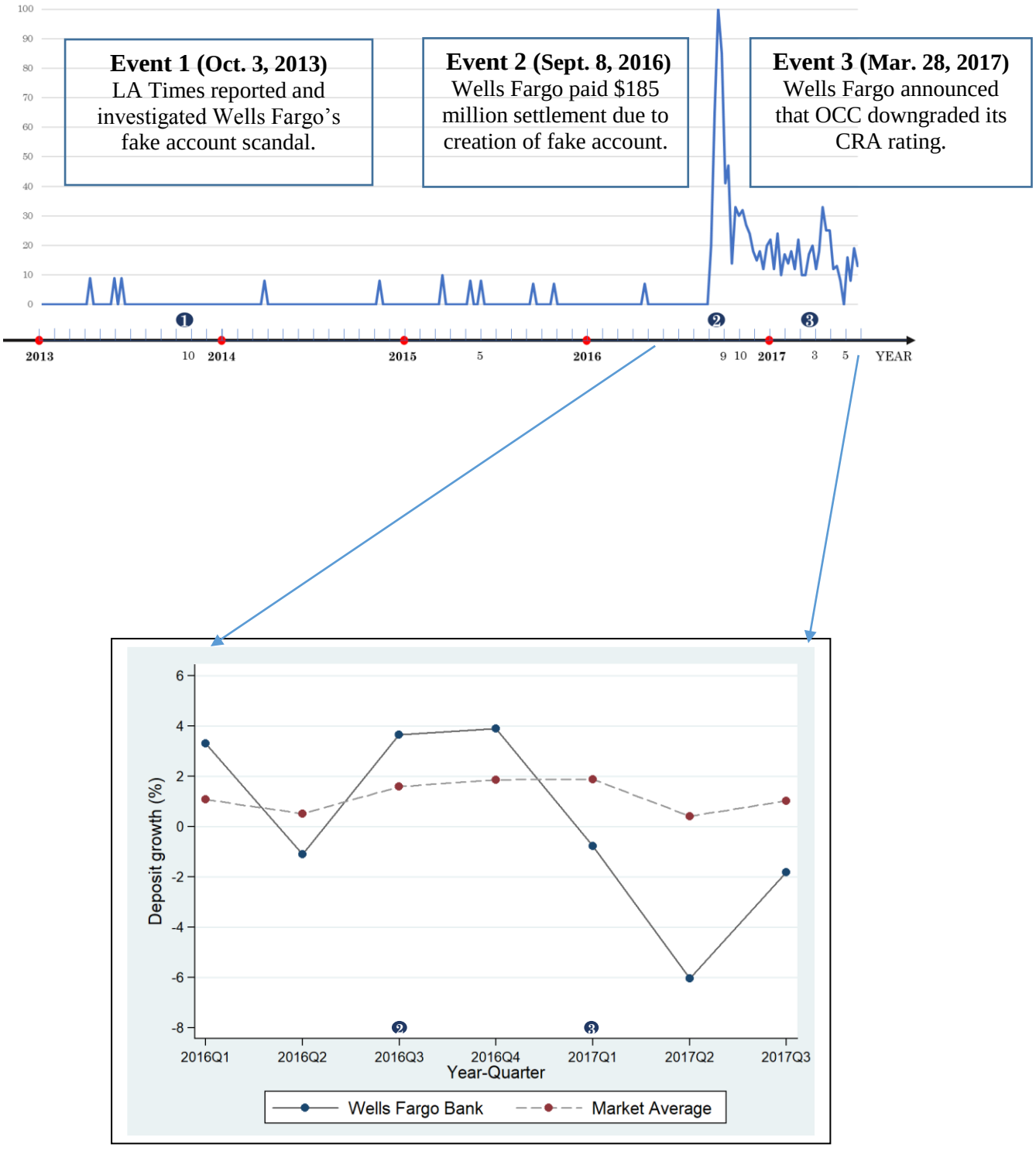

Table 1
Sample Distribution
This table reports the sample distribution. Panel A presents the distribution of the negative events (downgrade to "Needs to Improve") by year. Panel B presents the distribution of the negative event by state. Panel C presents the number of bank-quarter observations for the treatment banks and control banks.

Panel A: Bank-Specific Negative Event by Year

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
# Event	4	18	21	30	7	7	9	8	10	4	10
2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**Total**
16	25	27	27	29	18	23	15	7	13	11	339

Panel B: Bank-Specific Negative Event by State

State	AK	AL	AR	AZ	CA	CO	CT	DC	DE	FL	GA
# Event	0	5	2	1	33	4	1	0	3	10	6
HI	**IA**	**ID**	**IL**	**IN**	**KS**	**KY**	**LA**	**MA**	**MD**	**MI**	**MN**
1	8	1	27	12	3	9	6	7	15	5	8
MO	**MS**	**NC**	**ND**	**NE**	**NJ**	**NM**	**NY**	**OH**	**OK**	**OR**	**PA**
8	3	2	2	3	21	1	10	17	7	1	18
RI	**SC**	**SD**	**TN**	**TX**	**UT**	**VA**	**VT**	**WA**	**WI**	**WV**	**Total**
1	1	5	5	36	7	3	1	9	8	3	339

Panel C: Sample Distribution by Treatment and Event Year

	Treatment banks			Control banks	Total
	Pre-Event	**Post-Event**	**Reversal**		
N. of Observations	13,477	3,056	7,209	669,199	692,941

Table 2
Summary Statistics and Correlation Coefficients
Panel A presents the summary statistics of the variables used in our main regressions. Panel B reports Pearson correlation coefficients. *Deposit growth* is the growth ratio of deposits. *Large deposit outflow* is a binary variable equal to one if the deposit growth is less than -5% and zero otherwise. *Large deposit inflow* is a binary variable equal to one if the deposit growth is larger than 5% and zero otherwise. *CRA* is an ordinal variable with values of 1 to 4 corresponding to "Substantial Noncompliance," "Needs to Improve," "Satisfactory," and "Outstanding." *Post* is a binary variable equal to one starting from the year-quarter in which the disclosure indicates a CRA rating downgrade to "Needs to Improve" until the quarter in which the disclosure indicates a rating upgrade from "Needs to Improve.". *Size* is log of assets (in billions). *Tier1* is Tier 1 risk-based capital ratio. *NPL* is nonperforming loans divided by average total assets. *RE Loan* is loans secured by real estate divided by average total loans. *ROA* is return on assets, measured as net income divided by average total assets. *Liquidity* is the ratio of liquid assets to average total assets. *DepositRate* is interest expenses on deposits divided by the amount of deposits (in % annual). All continuous variables are winsorized at the top and bottom 1% of distribution. Appendix B provides detailed definitions of variables.

Panel A: Summary Statistics

	Treatment banks (N. of Obs. = 23,742 Bank-quarters)					**Control banks (N. of Obs. = 669,199 Bank-quarters)**				
	Mean	**Std. dev.**	**Q1**	**Median**	**Q3**	**Mean**	**Std. dev.**	**Q1**	**Median**	**Q3**
Deposit growth	0.020	0.070	-0.014	0.010	0.040	0.019	0.063	-0.012	0.011	0.039
Large deposit outflow	0.081	0.273	0.000	0.000	0.000	0.061	0.240	0.000	0.000	0.000
Large deposit inflow	0.195	0.396	0.000	0.000	0.000	0.179	0.383	0.000	0.000	0.000
CRA	2.911	0.476	3.000	3.000	3.000	3.151	0.373	3.000	3.000	3.000
Post	0.129	0.335	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total assets (in $billions)	4.136	54.996	0.079	0.218	0.612	1.242	24.759	0.055	0.117	0.271
Size	12.352	1.554	11.279	12.292	13.325	11.804	1.312	10.911	11.667	12.511
Tier1	0.213	0.153	0.115	0.153	0.255	0.172	0.098	0.115	0.144	0.192
NPL	0.012	0.016	0.002	0.006	0.014	0.010	0.014	0.002	0.006	0.013
RE loan	0.734	0.251	0.580	0.781	0.961	0.685	0.211	0.550	0.713	0.847
ROA	0.008	0.012	0.004	0.009	0.013	0.009	0.010	0.006	0.010	0.014
Liquidity	0.254	0.184	0.116	0.204	0.342	0.262	0.149	0.150	0.237	0.346
DepositRate (%)	2.273	1.486	0.922	2.122	3.494	2.279	1.409	0.990	2.189	3.508

Table 2, continued

Panel B: Correlation Coefficients (N=692,941 Bank-quarters)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	Deposit growth	1.000										
(2)	Large deposit outflow	**-0.329**	1.000									
(3)	Large deposit inflow	**0.617**	**-0.120**	1.000								
(4)	CRA	**-0.008**	**-0.018**	**-0.016**	1.000							
(5)	Post	**-0.010**	**0.015**	-0.001	**-0.200**	1.000						
(6)	Size	**0.014**	**-0.054**	**-0.020**	**0.086**	**0.021**	1.000					
(7)	Capital	**0.090**	0.001	**-0.006**	**-0.108**	**0.041**	**-0.272**	1.000				
(8)	NonPerform	**-0.107**	**0.077**	**-0.060**	**0.010**	**0.017**	**0.030**	**-0.106**	1.000			
(9)	RE loan	**-0.027**	**-0.059**	**-0.065**	**-0.028**	**0.012**	**0.265**	-0.003	**0.064**	1.000		
(10)	ROA	**-0.131**	**-0.062**	**-0.075**	**0.073**	**-0.027**	**0.065**	**-0.075**	**-0.261**	**-0.181**	1.000	
(11)	Liquidity	**-0.042**	**0.060**	**-0.043**	**-0.105**	**0.011**	**-0.378**	**0.490**	**-0.150**	**-0.310**	**0.011**	1.000
(12)	DepositRate	**0.029**	**-0.031**	**0.026**	**0.104**	**-0.025**	**-0.206**	**-0.031**	**-0.033**	**-0.098**	**0.077**	**-0.029**

Table 3
The Effect of Public Disclosure of Bank Social Performance on Deposit Flows
Panel A reports the effect of the negative events on depositor behavior. Panel B reports the regression results using alternative negative events. Panel C reports results using positive events. *Large deposit outflow* is a binary variable equal to one if the deposit growth is less than -5%, whereas *Large deposit inflow* is a binary variable equal to one if the deposit growth is larger than 5%. In Panel A, *Post* is a binary variable equal to one starting in the quarter in which the disclosure indicates a CRA rating downgrade to "Needs to Improve" until the quarter in which the disclosure indicates a rating upgrade from "Needs to Improve." In Panel B, *Post* is a binary variable equal to one starting in the quarter in which a bank holding company's CSR rating decreases from the previous period. See Appendix B for definitions of other variables. Robust standard errors, reported in parentheses, are clustered at the bank level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Public Disclosure of Bank Social Performance and Deposit Flows, Negative Events

	(1)	(2)	(3)	(4)	(5)	(6)
Events =	**Downgrade of CRA rating**					
Dep. var. =	**Deposit growth**		**Large deposit outflow**		**Large deposit inflow**	
Post	-0.007***	-0.009***	0.016**	0.015**	-0.027***	-0.028***
	(0.002)	(0.002)	(0.007)	(0.007)	(0.010)	(0.010)
Size		0.006***		-0.014***		-0.001
		(0.001)		(0.002)		(0.003)
Tier1		0.233***		-0.288***		0.464***
		(0.005)		(0.010)		(0.016)
NPL		-0.556***		1.002***		-2.362***
		(0.013)		(0.046)		(0.065)
RE loan		-0.034***		0.042***		-0.162***
		(0.002)		(0.006)		(0.010)
ROA		-0.976***		-0.837***		-2.730***
		(0.027)		(0.070)		(0.108)
Liquidity		-0.099***		0.280***		-0.388***
		(0.002)		(0.007)		(0.009)
DepositRate		-0.013***		-0.005***		-0.042***
		(0.001)		(0.001)		(0.002)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
State-Year FE	No	Yes	No	Yes	No	Yes
Model	OLS	OLS	LPM	LPM	LPM	LPM
N (Bank-quarters)	692,941	692,941	692,941	692,941	692,941	692,941
Adj. R^2	0.088	0.180	0.068	0.082	0.110	0.136

Table 3, continued

Panel B: Alternative Negative Events Based on CSR Performance

	(1)	(2)	(3)
Event =	**Decrease of CSR rating**		
Dep. var. =	**Deposit growth**	**Large deposit outflow**	**Large deposit inflow**
Post	-0.011**	0.025**	-0.037*
	-0.004	-0.011	-0.019
Size	0.071***	-0.005	0.169***
	-0.012	-0.018	-0.033
Tier1	0.003*	0.005	0.005
	-0.002	-0.003	-0.006
NPL	-0.613***	0.113	-1.975**
	-0.185	-0.521	-0.918
ROA	0.020***	-0.061**	0.074**
	(0.007)	(0.027)	(0.029)
Liquidity	-0.171**	0.787***	-0.584**
	(0.075)	(0.194)	(0.257)
DepositRate	5.784***	-8.913**	26.027***
	(1.760)	(4.120)	(5.279)
Bank FE	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes
Model	OLS	LPM	LPM
N (Bank-quarters)	7,506	7,506	7,506
Adj. R^2	0.08	0.097	0.102

Table 3, continued

Panel C: Public Disclosure of Bank Social Performance and Deposit Flows, Positive Events

	(1)	(2)	(3)	(4)	(5)	(6)
Event=	**Upgrade of CRA rating**			**Increase of CSR rating**		
Dep. var. =	**Deposit growth**	**Large deposit outflow**	**Large deposit inflow**	**Deposit growth**	**Large deposit outflow**	**Large deposit inflow**
Post $_{positive}$	-0.002	0.005	-0.007	-0.001	-0.003	0.011
	(0.002)	(0.005)	(0.010)	(0.004)	(0.010)	(0.017)
Size	0.006***	-0.014***	-0.001	0.070***	-0.003	0.166***
	(0.001)	(0.002)	(0.003)	(0.013)	(0.018)	(0.033)
Tier1	0.233***	-0.288***	0.463***	0.003*	0.006*	0.004
	(0.005)	(0.010)	(0.017)	(0.002)	(0.003)	(0.006)
NPL	-0.556***	1.002***	-2.363***	-0.636***	0.184	-2.098**
	(0.013)	(0.046)	(0.065)	(0.183)	(0.525)	(0.903)
RE loan	-0.034***	0.042***	-0.163***	n.a	n.a.	n.a.
	(0.002)	(0.006)	(0.010)			
ROA	-0.975***	-0.838***	-2.728***	0.020***	-0.062**	0.074**
	(0.027)	(0.070)	(0.108)	(0.007)	(0.027)	(0.029)
Liquidity	-0.099***	0.280***	-0.388***	-0.172**	0.790***	-0.592**
	(0.002)	(0.007)	(0.010)	(0.075)	(0.193)	(0.257)
DepositRate	-0.013***	-0.005***	-0.042***	5.664***	-8.556**	25.417***
	(0.001)	(0.001)	(0.002)	(1.780)	(4.162)	(5.331)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Model	OLS	LPM	LPM	OLS	LPM	LPM
N (Bank-quarters)	692,941	692,941	692,941	7,506	7,506	7,506
Adj. R^2	0.180	0.082	0.136	0.079	0.096	0.102

Table 4
Robustness Tests
This table presents the robustness tests of our results. Panel A reports results using a timing approach. Panel B reports the results using alternative samples. *Large deposit outflow* is a binary variable equal to one if the deposit growth is less than -5%, whereas *Large deposit inflow* is a binary variable equal to one if the deposit growth is larger than 5%. *Post* is a binary variable equal to one starting in the quarter in which the disclosure indicates a CRA rating downgrade to "Needs to Improve" until the quarter in which the disclosure indicates a rating upgrade from "Needs to Improve." See Appendix B for definitions of other variables. Robust standard errors, reported in parentheses, are clustered at the bank level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Timing Approach

	(1)	(2)
Dep. var. =	**Large deposit outflow**	**Large deposit inflow**
Quarter [-1, 0]	0.003	-0.022
	(0.012)	(0.016)
Quarter [1, 2]	0.008	-0.046***
	(0.011)	(0.017)
Quarter [3, 4]	0.027**	-0.047***
	(0.013)	(0.016)
Quarter 5^{+}	0.012*	-0.022*
	(0.007)	(0.011)
Controls	Yes	Yes
Bank FE	Yes	Yes
Year-Quarter FE	Yes	Yes
State-Year FE	Yes	Yes
N (Bank-quarters)	692,941	692,941
Adj. R^2	0.082	0.136

Panel B: Alternative Samples

	(1)	(2)	(3)	(4)
	Excluding bank-quarters with new branch and M&A activities		**Performance-matched sample**	
Dep. var. =	**Large deposit outflow**	**Large deposit inflow**	**Large deposit outflow**	**Large deposit inflow**
Post	0.015**	-0.021**	0.014*	-0.015*
	(0.007)	(0.009)	(0.008)	(0.009)
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes	Yes
N (Bank-quarters)	680,777	680,777	43,374	43,374
Adj. R^2	0.082	0.138	0.098	0.108

Table 5
The Effect of Negative Events on Trust in Banks

This table reports the effect of the negative events on trust in banks in county-year sample. Panel A presents the descriptive statistics of key variables. Panel B reports the regression results. The dependent variables are *Trust in banks*, *Trust in business*, and *Trust in judge*, calculated as the mean value of all the respondents' confidence level in banks, business, and U.S. supreme court, respectively. *Negative/positive event in county* is a binary variable equal to one for a county where at least one bank receives a CRA rating downgrade to/from "Needs to Improve." See Appendix B for definitions of other variables. Robust standard errors, reported in parentheses, are clustered at the county level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Summary Statistics (N. of Obs. = 5,869 County-years)

Variable	Mean	Std. dev.	Q1	Median	Q3
Trust in banks	0.946	0.379	0.714	1.000	1.167
Trust in business	1.000	0.342	0.800	1.000	1.182
Trust in judge	1.126	0.357	1.000	1.125	1.333
Female	0.510	0.010	0.504	0.510	0.517
Minority	0.276	0.190	0.117	0.236	0.408
Education	0.389	0.207	0.323	0.417	0.520
Unemployment	0.042	0.014	0.031	0.040	0.051
Income	3.849	0.312	3.645	3.844	4.063
House ownership	0.669	0.108	0.608	0.685	0.749
GDP	1.848	1.497	0.951	1.402	2.327

Panel B: Regression Analysis

	(1)	**(2)**	**(3)**
Dep. Var. =	**Trust in banks**	**Trust in business**	**Trust in judge**
Negative event in county (t-1)	-0.049*	-0.042	-0.012
	(0.028)	(0.030)	(0.032)
Positive event in county (t-1)	0.010	0.007	0.034
	(0.026)	(0.020)	(0.029)
Female	-4.572***	0.571***	-1.571***
	(1.485)	(2.591)	(2.272)
Minority	0.601**	0.540**	0.139***
	(0.271)	(0.241)	(0.282)
Education	-0.390**	-0.283**	-0.187**
	(0.251)	(0.232)	(0.279)
Unemployment	-0.392**	-1.022**	-0.563**
	(0.978)	(0.845)	(1.518)
Income	0.006**	0.053**	-0.001**
	(0.200)	(0.148)	(0.166)
House ownership	0.843**	0.378	0.354**
	(0.420)	(0.322)	(0.355)
State GDP	-0.132**	-0.006**	-0.094**
	(0.056)	(0.048)	(0.043)
County FE	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes
N (County-years)	5,869	5,869	5,869
Adj. R2	0.433	0.443	0.363

Table 6
Analysis Conditional on County-level Trust
This table reports the effect of the negative events on depositor behavior conditional on trust in the county where the bank is located. We measure *Trust* as the mean value of all the respondents' answer in the question whether people can be trusted at the county-year level, with values of 1 and 0 corresponding to "can trust" and "can't be too careful." Panel A reports the descriptive statistics. Panel B reports the regression analysis conditional on county-level trust. Appendix B provides variable definitions. Robust standard errors, reported in parentheses, are clustered at the bank level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Summary Statistics (N. of Obs. = 189,084 Bank-quarters)

	Mean	Std. dev.	Q1	Median	Q3
Trust	0.378	0.251	0.214	0.333	0.500

Panel B: Analysis Conditional on County-level Trust

	(1)	**(2)**	**(3)**	**(4)**
Dep. var. =	**Large deposit outflow**		**Large deposit inflow**	
Subsample =	**High trust**	**Low trust**	**High trust**	**Low trust**
Post	0.019**	0.012	-0.031**	-0.023
	(0.009)	(0.012)	(0.014)	(0.018)
Size	-0.029***	-0.032***	0.027***	0.036***
	(0.003)	(0.003)	(0.004)	(0.005)
Capital	-0.307***	-0.379***	0.299***	0.411***
	(0.018)	(0.022)	(0.028)	(0.033)
NPL	1.259***	1.087***	-1.974***	-1.816***
	(0.074)	(0.087)	(0.115)	(0.134)
RE Loan	0.008	0.029**	-0.096***	-0.146***
	(0.010)	(0.013)	(0.016)	(0.021)
ROA	-1.179***	-1.339***	-0.390**	-0.517**
	(0.112)	(0.135)	(0.174)	(0.209)
Liquidity	0.411***	0.461***	-0.440***	-0.445***
	(0.011)	(0.013)	(0.017)	(0.021)
DepositRate	-0.002	-0.003	-0.030***	-0.026***
	(0.002)	(0.003)	(0.003)	(0.004)
Bank FE	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes	Yes
N (Bank-quarters)	113,303	75,781	113,303	75,781
Adj. R^2	0.121	0.118	0.141	0.146
Wald test (F-test)	(1)-(2) = 0.007** (chi2 = 6.81)		(3)-(4) = -0.008** (chi2 = 4.70)	

Table 7
The Effect of Bank Social Performance During Recessions
This table reports the effect of pre-recession bank social performance on the depositor behavior during recession periods. The unit of observation is a bank. *Large deposit outflow (Large deposit inflow)* is a binary variable equal to one if the bank experiences deposit growth less than -5% (greater than 5%) in any quarter during the recession. CRA_{Pre} is the CRA rating in the quarter prior to the recession period. See Appendix B for definitions of other variables. Robust standard errors, reported in parentheses, are clustered at the bank level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

	(1)	(2)	(3)	(4)
Recession period =	**March 2001- December 2001**		**December 2007 - June 2009**	
Dep. var. =	**Large deposit outflow**	**Large deposit inflow**	**Large deposit outflow**	**Large deposit inflow**
CRA $_{Pre}$	-0.039***	-0.010	-0.039**	-0.008
	(0.010)	(0.013)	(0.016)	(0.012)
Size $_{Pre}$	-0.016***	-0.050***	-0.031***	-0.014***
	(0.004)	(0.005)	(0.005)	(0.004)
Tier1 $_{Pre}$	-0.116*	-0.307***	-0.440***	0.159**
	(0.063)	(0.080)	(0.083)	(0.066)
NPL $_{Pre}$	2.486***	-1.627***	2.395***	-0.322
	(0.494)	(0.538)	(0.538)	(0.407)
RE loan $_{Pre}$	-0.204***	-0.176***	-0.185***	-0.093***
	(0.028)	(0.033)	(0.038)	(0.029)
ROA $_{Pre}$	-2.712***	0.153	-2.782***	-2.234***
	(0.738)	(0.818)	(0.872)	(0.670)
Liquidity $_{Pre}$	0.000	-0.327***	0.162***	-0.221***
	(0.042)	(0.053)	(0.057)	(0.041)
DepositRate $_{Pre}$	0.005	-0.080***	0.034***	0.007
	(0.008)	(0.009)	(0.010)	(0.008)
State FE	Yes	Yes	Yes	Yes
N (Banks)	8,101	8,101	7,181	7,181
Adj. R^2	0.048	0.056	0.063	0.022

Table 8
The Effect of Negative Events on Deposit Redistribution
This table reports the redistribution of deposits in the zip codes impacted by the negative events. Panel A presents the descriptive statistics of the dependent variable. Panel B reports the regression results. *Deposit growth* is the annual growth ratio of deposits at the branch level. *Zip code impacted by negative event* is a binary variable equal to one if the branch is in a zip code where at least one branch's parent bank receives a CRA rating downgrade to "Needs to Improve." The variable *CRA* and other control variables are measured at the level of the branch's parent bank. See Appendix B for definitions of other variables. Robust standard errors, reported in parentheses, are clustered at the zip code level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Summary Statistics (N. of Obs. = 1,101,117 Branch-years)

	Mean	Std. dev.	Q1	Median	Q3
Deposit growth (%)	6.678	19.150	-2.456	3.803	11.333

Panel B: Regression Analysis

	(1)	(2)
Dep. var. =	**Deposit growth**	
Zip code impacted by negative event × CRA	1.393***	1.326***
	(0.250)	(0.249)
Zip code impacted by negative event	-3.350***	-3.489***
	(0.802)	(0.805)
CRA	-0.883***	-0.923***
	(0.067)	(0.070)
Size		-1.102***
		(0.103)
Tier1		-31.672***
		(0.968)
NPL		-61.233***
		(2.324)
RE loan		-3.459***
		(0.338)
ROA		103.772***
		(5.058)
Liquidity		5.575***
		(0.380)
DepositRate		3.338***
		(0.087)
Bank FE	Yes	Yes
Year FE	Yes	Yes
State-Year FE	No	Yes
N (Branch-years)	1,101,117	1,101,117
Adj. R^2	0.041	0.058

Table 9
Analysis Conditional on Deposit Insurance
This table reports the regression results of the effect of the negative events on depositor behavior for insured deposits and uninsured deposits. Panel A reports the summary statistics for additional variables. Panel B reports the regression results. *Large deposit outflow* (*Large deposit inflow*) is a binary variable equal to one if the deposit growth is less than -5% (greater than 5%). *Post* is a binary variable equal to one starting in the quarter in which the disclosure indicates a CRA rating downgrade to "Needs to Improve" until the quarter in which the disclosure indicates a rating upgrade from "Needs to Improve." See Appendix B for definitions of other variables. Robust standard errors, reported in parentheses, are clustered at the bank level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Summary Statistics (N. of Obs. = 692,941)

	Mean	Std. dev.	Q1	Median	Q3
Insured deposit					
Deposit growth	0.018	0.071	-0.012	0.008	0.033
Large deposit outflow	0.063	0.243	0.000	0.000	0.000
Large deposit inflow	0.165	0.371	0.000	0.000	0.000
Uninsured deposit					
Deposit growth	0.030	0.336	-0.091	0.022	0.150
Large deposit outflow	0.320	0.466	0.000	0.000	1.000
Large deposit inflow	0.432	0.495	0.000	0.000	1.000

Panel B: Regression Analysis

	(1)	(2)	(3)	(4)	(5)	(6)
	Insured deposits			Uninsured deposits		
Dep. var. =	Deposit growth	Large deposit outflow	Large deposit inflow	Deposit growth	Large deposit outflow	Large deposit inflow
Post	-0.011***	0.018***	-0.028***	-0.012**	0.013	-0.023**
	(0.002)	(0.007)	(0.009)	(0.006)	(0.010)	(0.010)
Size	0.005***	-0.006***	-0.005	0.018***	-0.041***	0.007***
	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)	(0.002)
Tier1	0.231***	-0.166***	0.439***	0.623***	-0.539***	0.528***
	(0.006)	(0.009)	(0.016)	(0.015)	(0.014)	(0.016)
NPL	-0.544***	0.893***	-2.181***	-0.887***	1.234***	-1.243***
	(0.014)	(0.043)	(0.062)	(0.038)	(0.057)	(0.059)
RE loan	-0.029***	0.027***	-0.135***	-0.062***	0.080***	-0.076***
	(0.002)	(0.005)	(0.009)	(0.005)	(0.008)	(0.008)
ROA	-1.131***	-0.643***	-3.270***	-1.216***	-0.097	-0.894***
	(0.028)	(0.064)	(0.109)	(0.069)	(0.089)	(0.093)
Liquidity	-0.080***	0.169***	-0.299***	-0.331***	0.433***	-0.450***
	(0.002)	(0.006)	(0.009)	(0.007)	(0.009)	(0.009)
DepositRate	-0.018***	0.011***	-0.047***	0.001	-0.024***	0.012***
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N (Bank-quarters)	692,941	692,941	692,941	692,941	692,941	692,941
Adj. R^2	0.202	0.073	0.173	0.068	0.059	0.033

Table 10
Analysis Conditional on Depositor Sophistication
This table presents the effect of the negative events on depositor behavior conditional on depositor sophistication. We measure the level of depositor sophistication for a bank based on the household or population characteristics in the county where the bank is located. Panels A and B show the result for the analysis conditional on income and education. Appendix B provides variable definitions. Robust standard errors, reported in parentheses, are clustered at the bank level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Analysis Conditional on Income

	(1)	(2)	(3)	(4)
Dep. var. =	**Large deposit outflow**		**Large deposit inflow**	
Subsample =	**High income**	**Low income**	**High income**	**Low income**
Post	0.013**	0.006	-0.027***	-0.003
	(0.006)	(0.009)	(0.009)	(0.015)
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes	Yes
N (Bank-quarters)	345,968	345,934	345,968	345,934
Adj. R^2	0.093	0.077	0.148	0.141
Wald test (F-test)	(1)-(2) = 0.007* (χ^2 = 4.25)		(3)-(4) = -0.024** (χ^2 = 5.87)	

Panel B: Analysis Conditional on Education

	(1)	(2)	(3)	(4)
Dep. var. =	**Large deposit outflow**		**Large deposit inflow**	
Subsample =	**High education**	**Low education**	**High education**	**Low education**
Post	0.015**	-0.007	-0.029***	0.001
	(0.007)	(0.009)	(0.010)	(0.014)
Controls	Yes	Yes	Yes	Yes
Bank FE	Yes	Yes	Yes	Yes
Year-Quarter FE	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes	Yes
N (Bank-quarters)	345,862	345,800	345,862	345,800
Adj. R^2	0.091	0.085	0.139	0.168
Wald test (F-test)	(1)-(2) = 0.022** (χ^2 = 6.21)		(3)-(4) = -0.030** (χ^2 = 6.24)	

Table 11
The Effect of Negative Events on Bank Financial and Lending Performance
This table reports the effect of the negative events on bank performance and lending activities using the bank-year sample. Panel A presents the summary statistics of the dependent variables. Panel B (Panel C) presents the regression results without (with) controls. See Appendix B for variable definitions. Robust standard errors, reported in parentheses, are clustered at the bank level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A: Summary Statistics (N. of Obs. = 170,486 Bank-years)

	Mean	Std. dev.	Q1	Median	Q3
ROA (%)	0.851	0.956	0.561	0.958	1.324
ROE (%)	8.660	9.050	5.166	9.162	13.404
Yield on earnings assets (%)	6.372	1.753	4.970	6.398	7.801
Cost of funding (%)	2.059	1.240	0.910	2.034	3.130
Noninterest income (%)	0.834	1.819	0.361	0.598	0.924
Noninterest expense (%)	3.111	1.139	2.426	2.929	3.538
Growth of credit	0.050	0.092	0.000	0.038	0.086

Panel B: Analysis without Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. var. =	**ROA**	**ROE**	**Yield on earnings assets**	**Cost of funding**	**Noninterest income**	**Noninterest expense**	**Growth of credit**
Post	-0.170***	-1.949***	-0.157***	0.076**	0.026	-0.020	-0.016***
	(0.057)	(0.523)	(0.042)	(0.032)	(0.235)	(0.071)	(0.005)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N (Bank-years)	170,486	170,486	170,486	170,486	170,486	170,486	170,486
Adj. R^2	0.432	0.448	0.902	0.922	0.637	0.671	0.225

Table 11, continued

Panel C: Analysis with Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. var. =	**ROA**	**ROE**	**Yield on earnings assets**	**Cost of funding**	**Nonint. income**	**Nonint. expense**	**Growth of credit**
Post	-0.155***	-1.795***	-0.123***	0.075***	0.042	0.023	-0.019***
	(0.052)	(0.470)	(0.040)	(0.028)	(0.229)	(0.065)	(0.005)
Size	0.210***	1.695***	-0.005	0.135***	-0.023	-0.466***	0.016***
	(0.014)	(0.133)	(0.012)	(0.008)	(0.030)	(0.019)	(0.001)
Tier1	-1.658***	-19.863***	-1.010***	-1.720***	-0.001	1.753***	0.320***
	(0.090)	(0.634)	(0.062)	(0.043)	(0.168)	(0.098)	(0.010)
NPL	-17.072***	-180.880***	-2.736***	1.283***	-1.095	6.651***	-1.670***
	(0.368)	(3.702)	(0.240)	(0.136)	(0.669)	(0.311)	(0.031)
RE loan	0.138***	0.591	-0.507***	0.334***	0.095	-0.387***	-0.032***
	(0.043)	(0.386)	(0.041)	(0.025)	(0.123)	(0.054)	(0.005)
Liquidity	-0.538***	-2.826***	-1.900***	-0.141***	-0.227***	-0.698***	0.039***
	(0.038)	(0.345)	(0.036)	(0.022)	(0.087)	(0.046)	(0.004)
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N (Bank-years)	170,486	170,486	170,486	170,486	170,486	170,486	170,486
Adj. R^2	0.527	0.548	0.919	0.938	0.648	0.718	0.338