Regulators' Disclosure Decisions: Evidence from Bank Enforcement Actions[☆]

Anya Kleymenova, Rimmy E. Tomy
University of Chicago Booth School of Business

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Abstract

Regulatory disclosure requirements induce market discipline and facilitate efficient allocation of resources by increasing firm transparency. At the same time, disclosure increases the visibility of regulatory actions, which influences the behavior of regulators. In this paper, we study the impact of a change in the disclosure regime by using the setting of the 1989 Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA), which required bank regulators to disclose enforcement actions publicly. Using a novel sampling technique to identify enforcement actions in the non-disclosure regime, we find that regulators' incentives change after the introduction of the Act. In the disclosure regime, regulators are more likely to issue enforcement actions, as well as to rely on publicly observable signals to issue enforcement orders, suggesting a response to the increased public scrutiny of their actions. We also find that following an enforcement action, its disclosure leads to a decline in deposits and improves banks' capital ratios and asset quality. Furthermore, enforcement actions are a stronger predictor of bank failure in the disclosure period.

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Email addresses: Anya.Kleymenova@chicagobooth.edu (Anya Kleymenova), Rimmy.Tomy@chicagobooth.edu (Rimmy E. Tomy)

1. Introduction

Does the observability of regulators' actions influence their efforts? On one hand, when actions are observable, regulators may become stricter to convince outsiders of their competence. On the other hand, to reduce the possibility of lawsuits and protect their credibility, regulators may choose to take less contentious actions once they are observable. Goldstein & Sapra (2014) argue that the disclosure of regulators' actions impacts their credibility and reputation and therefore has a disciplining effect. However, if regulatory disclosure also serves the purpose of sharing the responsibility of monitoring with market participants, it could lead to the regulator delegating some of the monitoring to the market and, as a result, exerting less effort.

In this paper, we utilize a unique setting of the 1989 change in the US disclosure regime, which required US banking regulators to disclose their enforcement actions against banks. This setting provides a laboratory to study how the disclosure of regulatory actions impacts regulatory incentives and therefore, regulatory effort. There is limited empirical research on regulatory discretion, particularly on the effect of disclosure on regulators' actions.[1] One reason for this limited empirical work is that regulators' actions are typically unobservable in a non-disclosure regime. A key innovation of our paper is that we identify enforcement actions in the non-disclosure regime by studying documents related to the termination of enforcement actions that were released in the period after the regime change. Termination documents provide information about the type of enforcement action received, the original date of issuance, the name of the bank, and the regulator who issues the enforcement action.[2]

Enforcement actions (also referred to as Enforcement Decisions and Orders or EDOs) are an important regulatory tool used by bank regulators to force a bank to take corrective

[1] Several papers study regulatory incentives; however, none of them focus on the effect of disclosure of regulatory actions (Agarwal et al., 2014; Costello et al., 2019; Granja & Leuz, 2017).

[2] Ideally, we would have liked to obtain enforcement orders issued in the non-disclosure regime directly from the regulator instead of collecting this information from termination documents. However, getting these documents has proven to be difficult. We have made several unsuccessful FOIA requests to the FDIC and the National Archives to obtain these documents.

actions. Although bank regulators have issued enforcement actions since 1966, contemporaneous information on enforcement actions was publicly disclosed only from 1989 following the passage of the Financial Institutions Reform, Recovery, and Enforcement Act (FIREA).[3] These orders are an early warning sign to stakeholders about issues at the bank and convey information on actions that managers are required to take to prevent bank failure. Following on-site examinations, bank supervisors bring enforcement actions against a bank and its officers for management or financial problems, including poor loan administration or internal controls; inadequate capital, liquidity, or loan loss reserves; excessive asset growth or concentration; and inaccurate filings. Bank regulators issue formal enforcement orders when other methods of supervision have failed and they need to force a bank to take corrective actions (Curry et al., 1999; Eisenbach et al., 2017). Violation of an enforcement action is a serious offense and could lead to monetary penalties or the withdrawal of deposit insurance.

Proponents of increased disclosure in banking argue that it enhances market discipline by depositors and investors because additional information allows stakeholders to allocate capital away from risky banks. The disclosure of regulatory actions also allows for the monitoring of regulators by holding them accountable for their actions. It increases depositors' and investors' confidence in the banking system by allaying concerns that regulators are privately forbearing. However, disclosures by banks and banking regulators are different from other types of regulatory disclosures as they could result in contagion and instability of the banking system (Docking et al., 1997; Slovin et al., 1999) as well as limit the ex-ante risk-sharing ability of banks (Goldstein & Leitner, 2018; Hirshleifer, 1971). Disclosure of negative information may also lead to banks facing market discipline in the form of increased funding costs or bank runs, making banks less willing to cooperate with regulators (Leitner, 2014).

We begin our analyses by investigating the impact of the disclosure of enforcement actions on depositors. We find that, in the disclosure regime, the level of total deposits (measured as the natural logarithm of total deposits) decline by 3.2% to 7% relative to the level of

[3]We discuss events leading up to the passage of this Act in greater detail in Section 2 below.

deposits in the non-disclosure regime. This translates to 2.6% to 5.9% share of total assets. We also find a large and significant decline in uninsured deposits. Uninsured depositors are a group of stakeholders that are directly impacted by problems at the bank because they stand to lose their deposits in case of bank failure. One of the arguments in favor of disclosing enforcement actions publicly is depositors' increased ability to exercise market discipline and monitor banks (Flannery, 1998). Because uninsured deposits are riskier, our findings are consistent with depositors imposing market discipline on affected banks when their deposits are at risk. Furthermore, since the disclosure of an enforcement action is how depositors learn about its existence, we conclude that the decision to disclose enforcement actions has economic significance. In additional tests, we find that greater press coverage of enforcement actions is associated with a larger decline in deposits.

Given our finding that the disclosure of enforcement actions has an impact on depositors and potentially increases the risk of contagion, making banks less likely to cooperate with the regulator, we expect the change in the disclosure regime also to influence regulators' decisions to issue enforcement actions. We study changes in regulators' incentives by employing a Cox proportional hazard model that predicts the time to receiving an EDO conditional on a set of time-varying covariates. We find that in the disclosure regime, regulators are five times more likely to issue an enforcement action and rely more on publicly observable signals than in the non-disclosure regime. For instance, in the non-disclosure regime, a bank in the 75th percentile of non-performing assets is 1.27 times more likely than a bank in the 25th percentile to receive an enforcement action. However, in the disclosure regime, a bank in the 75th percentile is 1.81 times more likely to receive an EDO compared to a bank in the 25th percentile. Similarly, we find that banks' capital ratio and profitability (measured as the return on assets) feature more strongly in the regulators' decision to issue enforcement actions after the change in the disclosure regime. Prior to the change, a bank in the 75th percentile of capital and profitability had a similar likelihood of receiving an enforcement action as a bank in the 25th percentile. However, after the disclosure regime change, a

bank in the 75th percentile of capital (profitability) was only 0.55 (0.76) times as likely to receive an EDO compared to a bank in the 25th percentile. Our results suggest that regulators are more likely to rely on publicly observable signals in the disclosure regime. If the role of disclosure is to share the regulatory burden with market participants, regulators may reduce monitoring efforts and collect less private information once their actions are observable (Goldstein & Sapra, 2014).

Next, we study the effect of regulatory disclosure on other bank outcomes by comparing loan growth, capital ratios, and asset quality of banks that received enforcement actions in the disclosure regime to banks that received enforcement actions in the non-disclosure regime. Our findings suggest that following the change in the disclosure regime, affected banks (banks that receive enforcement actions) improve their capital ratios by a relative 0.4% (or 12% of the sample standard deviation) and the quality of their asset portfolios by 0.7% (representing 20% of the sample standard deviation).

Finally, we assess the impact of disclosure of enforcement actions on bank failure. We find that the receipt of enforcement actions is a strong predictor of bank failure in the disclosure regime. In contrast, failing banks were less likely to receive an enforcement action in the non-disclosure regime. These findings reinforce the argument that regulators were concerned about the observability of their actions and changed their behavior following the disclosure of enforcement actions.[4]

Our study contributes to the literature across several dimensions. First, our research speaks to the broader literature on regulatory incentives and supervisory actions (Agarwal et al., 2014; Costello et al., 2019; Granja & Leuz, 2017; Peltzman, 1976; Stigler, 1971). We contribute to this literature by investigating the role of disclosure of supervisory efforts. One of the arguments in support of regulatory disclosure of enforcement actions is that it can improve market discipline by providing additional information about banks' fundamentals

[4]We estimate the accelerated failure time models to assess whether the disclosure of an enforcement action could have accelerated bank failure.

and allay concerns that regulators are privately forbearing. Given that supervisory actions are typically unobservable, our paper provides a unique opportunity to study changes in regulatory incentives once regulatory effort becomes observable. In particular, we find that regulators respond to the change in the disclosure regime by increasing interventions and relying more on publicly observable signals.

We also contribute to the literature on the role of disclosure as a disciplining device for financial institutions (Acharya & Ryan, 2016; Anbil, 2018; Bushman & Williams, 2012; Flannery, 1998; Flannery et al., 2013). While it has been argued that more information is always better (Blackwell, 1951), several studies show that in the presence of externalities, more information might lead to unintended consequences and increased costs (Goldstein & Sapra, 2014; Kleymenova, 2018; Thakor, 2015). Banks operate in a market with frictions and are prone to bank runs (Diamond & Dybvig, 1983; He & Manela, 2016; Morris & Shin, 2002). Therefore, it is unclear *a priori* whether increased disclosure would result in depositors increasing their monitoring of banks or lead to financial instability due to contagion and bank runs. In a historical setting of disclosing banks' access to the discount window during the Great Depression, Anbil (2018) documents that depositors respond to this disclosure by withdrawing deposits. Similarly, Chen et al. (2018) find a positive relationship between increased bank transparency and the sensitivity of uninsured deposits to bank performance. If regulatory disclosure increases transparency about bank fundamentals, it would decrease uncertainty associated with the quality of banks' assets (Duffie & Lando, 2001). However, if depositors perceive regulatory actions as identifying weak banks, they will withdraw their deposits and create a bank run. Consistent with the latter, we find that depositors withdraw their funds following the disclosure of enforcement actions.

Finally, our study adds to the literature on the role and economic consequences of regulatory disclosure. We contribute to the research investigating mandatory disclosure by bank regulators during the financial crisis as well as to the literature related to bank enforcement actions (Bischof & Daske, 2013; Curry et al., 1999; Delis et al., 2016; Duro et al., 2019; El-

lahie, 2013; Gilbert & Vaughan, 2001; Peristiani et al., 2010; Roman, 2016; Wheeler, 2019). We add to these studies by providing evidence that disclosures of bank enforcement actions improve bank capital and the quality of their loan portfolios. Our paper directly tests the effect of regulators' disclosure decisions by comparing the effect of enforcement actions in a regime with no disclosure to one with disclosure.

2. Background

Bank supervisory activities are meant to ensure that banks follow safe and sound practices and do not engage in overly risky behavior, which could pose a threat to the stability of the banking system. As part of their supervisory activities, regulators issue enforcement actions against banks and their officers. These enforcement actions could be in response to several situations such as inadequate capital, liquidity, loan loss reserves, excessive risk-taking, or poor management. Although bank regulators could issue enforcement actions against banks following the Financial Institution Supervisory Act of 1966 (FISA), it was only in 1989, after the passage of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) that these enforcement orders were publicly disclosed.

Bank regulators bring enforcement actions against problem banks as a measure of last resort and exercise some discretion in issuing enforcement actions. For instance, bank regulators could adopt informal methods such as bank board resolutions or issue a memorandum of understanding before resorting to more formal techniques such as a cease-and-desist order. The primary reason for issuing a formal enforcement order is to force the affected bank to take corrective actions (Curry et al., 1999; Srinivas et al., 2015). The disclosure of enforcement actions in 1989 followed a series of events, which we summarize in Appendix A and describe in greater detail below.

The Savings and Loans (S&L) crisis of the late 1980s and early 1990s sparked a debate regarding the role of market discipline and increased regulation in the banking industry. During this time, the Federal Deposit Insurance Corporation (FDIC) witnessed several bank

failures, leading to a depletion of the FDIC deposit insurance fund. As a result, the FDIC chairman at the time, William. M. Isaac, called for a greater role of market discipline in bank regulation and oversight. In 1984, the Continental Illinois National Bank and Trust Company failed, costing the FDIC $1.1 billion and creating one of the largest failures of an insured financial institution (FDIC, 2014). In response to these events, the FDIC released a proposal in 1985 to disclose enforcement actions, allowing depositors and other funding providers to monitor banks with more tools at their disposal. However, this proposal received minimal support. Banks vocally opposed the proposal, citing fears of bank runs, and of the 768 comment letters received by the FDIC, only 57 were in favor of implementing this change.[5] As a result, the proposal was stalled.

In 1985, L. William Seidman was appointed as chairman of the FDIC. Seidman compellingly argued in Congressional testimony that the FDIC should take a leading role in the S&L cleanup, with Congress agreeing to insulate the FDIC chairman and vice-chairman from presidential removal before their appointed terms had finished.[6] The FDIC and other bank regulators were mandated to disclose final enforcement actions with the August 1989 implementation of FIRREA, which ordered that "the appropriate Federal banking agency shall publish and make available to the public–(A) any final order issued with respect to any administrative enforcement proceeding initiated by such agency under this section or any other provision of the law; and (B) any modification or termination of any final order."[7]

3. Data and sample

Our data comes from several sources. First, we rely on the SNL Financial database to collect all enforcement actions issued by bank regulators. These include enforcement actions that were disclosed after the introduction of FIRREA in August 1989. To identify

[5]See, for example, "FDIC May Delay Public-Disclosure Rule for Banks," *The Wall Street Journal*, December 11, 1985; "F.D.I.C. Decides to Disclose Disciplinary Actions," *The New York Times*, May 5, 1985.

[6]See "F.D.I.C. Chairman Asks Changes in Rescue Plan," *The New York Times*, March 9, 1989; "Bush Plan on Savings is Set Back," *The New York Times*, April 7, 1989.

[7]Section 913—Public Disclosure of Enforcement Actions Required of FIRREA.

enforcement actions in the pre-FIRREA period, we rely on termination documents that were made public in the post-FIRREA period. If a bank received an enforcement order in the pre-FIRREA period but this order was terminated after the passing of the Act, a public termination order reveals the identity of the bank that received an enforcement action in the non-disclosure regime as well as the date on which the enforcement order was originally issued. We rely on these ex-post disclosures to construct our sample of enforcement actions in the non-disclosure regime.

One drawback of our sampling technique for the pre-FIRREA period is that we only observe enforcement orders that were initiated prior to the introduction of the Act and were terminated post-FIRREA. Therefore, we potentially have missing observations in the earlier years of our sample. To manage this concern, we restrict our analysis in the pre-FIRREA period to the four years before the introduction of the Act and the resulting change in the disclosure regime. Because it takes on average two to four years for banks and regulators to address an enforcement action in the post-disclosure period (see Figure 2), we are likely to observe the majority of enforcement actions in the pre-disclosure period in our sample.

There are several types of enforcement actions, and they vary by degree of severity. We restrict our analysis to the most common and severe types of enforcement actions: Cease and Desist (C&D) Orders, Formal Agreements/Supervisory Agreements, Consent Orders, and Prompt Corrective Action (PCA) Orders. C&D Orders (sometimes also referred to as "Consent Orders") are injunction-type, enforceable orders that may be issued to an institution or a banking organization when it engages, has engaged or is about to engage in an unsafe or unsound banking practice or violation of the law. Formal Written Agreements prescribe restrictions, corrective measures and remedies that banks need to take in order to return to a safe and sound condition. PCA Orders require banks to take certain corrective measures to protect their capital; for instance, capital directives that require banks to raise the level of their regulatory capital are an example of PCAs. We rely on SNL's classification of orders and cross-reference them to the orders available on banking regulators' websites to

ensure classification accuracy. The total number of enforcement actions available through SNL is 16,667 (8,955 of which were issued by the FDIC), including 193 that are identified as termination orders for the enforcement actions issued in the pre-disclosure regime. We find an additional 20 enforcement actions from the regulators' websites. We focus on the most severe enforcement actions as described above, and our starting sample contains 1,893 unique severe enforcement actions issued by all bank regulators.

We begin by providing some descriptive evidence about the nature and content of enforcement actions in our sample. Table 1 shows the characteristics of enforcement actions issued by the FDIC from 1990 to 2017; their length in terms of the total number of words; the most commonly used phrases found in these enforcement actions (using bigrams); and two widely used measures of content readability (Gunning FOG index and Flesch Grade Level readability score).[8]

As Table 1 shows, the content of enforcement actions changed in focus over time from unsafe and unsound practices to a greater emphasis on fiduciary duty towards depositors and deposit insurance. The years after the financial crisis (as well as 1991 and 1992) had the wordiest documents, averaging between 822 and 1,015 words. The average length of EDOs in terms of words is 645 words per document, with complexity requiring on average more than 17 years of education to understand these documents. The most commonly used phrases over the whole period are "deposit insurance," "federal deposit," and "unsafe unsound," which is not surprising given that we study the most severe enforcement actions. Figure 1 shows the most prominent words across enforcement actions in 1990, 2000, 2008 and 2017. Similar to our bigram results in Table 1, the focus and content of EDOs appear to change over time, with "federal deposit insurance" featuring more prominently in later years, especially after the financial crisis.

We also provide additional information on EDO length and numbers, the name of the

[8]We focus our textual descriptive evidence on the FDIC's severe actions as we were able to collect the most comprehensive set of documents from SNL for the FDIC's enforcement actions only. There were 8,946 enforcement actions that could be read using machine language techniques.

regulator that issues EDOs in a given year, and penalties that banks have to pay as a result of receiving an enforcement action. Figure 2 presents the number and average length of EDOs and shows that two distinct periods generated the highest volume of EDOs: following the S&L crisis in the early 1990s and following the financial crisis in 2009-2011. The largest number of enforcement actions was issued after the financial crisis, with 2010 being the most active year, generating 874 enforcement actions. On average, EDOs take two to four years to be resolved (the median is between two to three years). The highest median number of days to resolution is more than 900 days (following the financial crisis in 2009), and the lowest is fewer than 600 days in 2015 (EDOs in 2017 are truncated as many of the EDOs issued in 2017 are still outstanding). Figure 3 shows that the Federal Deposit Insurance Corporation (FDIC) issues the highest number of EDOs, followed by the Federal Reserve (Fed), the Office of the Comptroller of the Currency (OCC) and finally the Office of Thrift Supervision (OTS).[9] The FDIC issued the highest number of EDOs after the financial crisis in 2010, with more than 350 enforcement actions.

In addition, we analyze the fines that regulators impose on financial institutions as monetary remedies following an enforcement action. These monetary penalties could be levied against a bank, an individual responsible for a particular action (e.g., a bank or a branch manager), or both. As mentioned above, the passage of FIRREA also increased the amount of penalties that regulators could impose on a bank or its managers. Figure 4 shows that the highest number of EDOs with penalties occurred in the period following the financial crisis. However, as can be seen from both Figure 4 and Figure 5, the highest mean and median penalties were levied in 2015. The mean result is somewhat skewed by the $140 million penalty imposed by the FDIC on Banamex USA, a subsidiary of Citigroup, for violations of the Bank Secrecy Act. This was by far the largest civil penalty that regulators imposed as part of the enforcement actions we study. Furthermore, the two figures also show that less

[9]The OTS ceased to exist in July 2011 and its functions were absorbed into the OCC, which is the reason why we do not observe any EDOs issued by the OTS after 2011.

than a quarter of banks that receive an enforcement action are required to pay a monetary remedy.

In our review of enforcement actions, we found that they are mostly received by commercial banks. Therefore, we focus our empirical analyses on commercial banks. We use the commercial bank Call Report data from the Federal Financial Institutions Examination Council (FFIEC) and merge it with the SNL enforcement actions data. We restrict our sample to banks that receive an EDO for the first time either in the non-disclosure or disclosure regime period. We also match our sample of banks that received an EDO to similar banks that did not receive an EDO using total assets and geographic location as our main matching parameters (i.e., banks located in the same county and having comparable levels of total assets in the quarter before the receipt of an EDO). Matching banks on their geographic location allows us to take into account local macroeconomic shocks and the effect of the business cycle as we compare banks within the same county, year and quarter. For our first analysis of banks that received an EDO, we also construct a matched sample of banks that received an EDO in the non-disclosure period matched to banks that received an EDO in the disclosure period to isolate the effect of the change in the disclosure regime from changes in bank fundamentals due to the overall change in enforcement. Finally, we also match banks receiving EDOs in the non-disclosure periods to banks receing EDOs in the disclosure period based on the length of time a given EDO took to resolve (which proxies the severity of an enforcement action).[10] Our final sample consists of 40,186 bank-quarter observations for the whole sample period of 1985 to 1997, with 1,105 unique banks in the treatment sample and 920 unique banks in our matched control sample. We limit our sample to end in 1997 to decrease the disparity in the sample size between pre- and post-disclosure regime changes.

Table 2 shows the summary statistics for the full sample before matching. Column (1) presents the means for the treatment sample of banks that received an EDO, and column (2)

[10]We also use propensity score matching as an alternative technique for identifying comparable control banks.

shows means of the main variables for all other banks that did not receive an EDO. Treated banks and other banks have similar levels of deposits. The log level of deposits is 10.9 for treated banks and 10.7 for other banks. This translates to an average of 90.6% of total assets for treated banks and 87.1% for other banks, indicating that treated banks are similar to other banks in terms of their reliance on deposit funding. On average, banks that receive an EDO in our sample have 59.2% of assets invested in loans (52.5% for other banks). Treated banks on average have lower capital ratios than other commercial banks (6.8% relative to 9.6%), higher non-performing loans (5.9% relative to 2.1% of banks without EDOs), lower profitability (with an average ROA being negative 0.5% relative to the positive 0.6% for other banks), and lower liquidity (6.9% relative to 7.4%). Finally, on average, banks that receive an EDO are larger than banks that did not receive an EDO. In our analyses, we rely on matched samples to minimize the differences in the observable characteristics between treated banks and our control sample.

4. Empirical analysis, research design and results

In this section, we discuss our main empirical tests and results. We begin by providing a descriptive analysis of changes to bank characteristics around the change in the disclosure regime. We then present evidence to show that disclosure had a large and significant impact on bank deposits. By studying factors that influence the receipt of an EDO in the two regimes, we infer changes to regulators' incentives. Specifically, we find that in the disclosure regime, regulators are more likely to issue EDOs, as well as rely more on publicly observable signals. Finally, we study the effect of EDO-disclosure on other bank outcomes using a difference-in-differences research design and multiple matching techniques. We find that the disclosure of EDOs leads to better capital ratios and asset quality.

4.1. Descriptive analyses

We begin our analyses by assessing univariate plots for our outcome variables, in event time, for the periods before and after the change in the disclosure regime. We test the effect of

disclosing an enforcement action on five different outcome measures: net total loans-to-total-assets ratio (as a measure of the asset portfolio), deposits-to-total-assets ratio (as a measure of banks' ability to receive funding from depositors and a proxy for market discipline), capital ratio (as a measure of banks' soundness), non-performing assets relative to total assets (as a measure of banks' asset quality), and return on assets (as a measure of profitability). Figures 6, 7, and 8 show the mean values for the four outcome variables over 17 quarters centered on the quarter in which the enforcement order is received. Event time = 0 indicates the period when a firm receives an enforcement order. The dotted line represents the mean values of the outcome variable in the non-disclosure regime ($Disclosure = 0$), whereas the solid line represents values in the disclosure or post-FIRREA period ($Disclosure = 1$). In this and all subsequent analyses, we drop EDOs issued in the third quarter of 1989, when the disclosure regime changes as a result of FIRREA, and do not assign this quarter to either the disclosure or the non-disclosure regime.

Panel A of Figure 6 shows the evolution of the loans-to-assets ratio in the quarters before and after receiving an enforcement action. Loans decline before a bank receives an enforcement action, although they decline faster in the disclosure regime, indicating that regulators issue enforcement actions for a more precipitous decline in loans in the disclosure regime. In the quarters following the issuance of an enforcement order, the loans-to-assets ratio improves marginally faster in the disclosure regime, suggesting that banks make faster operational improvements following the disclosure of enforcement actions.

Panel B of Figure 6 shows a similar plot for the ratio of deposits to total assets. In the quarters leading up to the enforcement action, this plot exhibits a pattern similar to the one for loans; that is, a more precipitous drop in deposits invites an enforcement action in the disclosure regime as compared to the non-disclosure regime. The trend in the ratio of deposits following the enforcement action suggests market discipline by depositors. Whereas the deposit ratio grows much faster in the non-disclosure regime, it picks up very slowly in the disclosure regime. In later analysis, we study the trend in deposits in a multivariate

setting and find that, following a receipt of an EDO, deposits decline in the disclosure regime relative to the non-disclosure regime, providing evidence consistent with depositors enforcing market discipline.

Figure 7 presents event time plots for the capital ratio and non-performing assets (NPA). Unlike loans and deposits ratios, regulators issue enforcement actions for a less abrupt drop in the capital ratio in the disclosure regime. Furthermore, banks improve their capital ratios soon after an enforcement action in the disclosure period. Panel B of Figure 7 shows a similar result for NPA. A bank receives an enforcement action for a lower level of NPA in the disclosure regime. NPA decline after receiving an enforcement action in both regimes. Figure 8 indicates that, relative to the disclosure regime, the return on assets (ROA) declines substantially more in the non-disclosure regime before a bank receives an enforcement action. Figure 8 also shows that the recovery of ROA is slower in the non-disclosure regime.

Our findings in this section indicate two things. First, enforcement actions result in better bank outcomes in the disclosure regime as compared to the non-disclosure regime. Second, regulators' incentives seem to matter. Given that the public can scrutinized regulators' actions in the disclosure regime, the criteria for awarding an enforcement action seems to change as well. For instance, a smaller decline in capital ratio and a lower level of NPA are more likely to invite an enforcement action in the disclosure regime relative to the non-disclosure period. We provide additional analyses of changes in regulatory incentives using a multivariate approach and a Cox proportional hazard model in subsection 4.3 below.

4.2. Impact of disclosure on depositors

If the disclosure of enforcement actions leads to depositors exercising market discipline and withdrawing their funds, we would expect the change in the disclosure regime to result in higher withdrawals from depositors at banks that receive an EDO. We start by assessing the potential differential impact on all deposits and then delineate between deposits that are covered or not covered by the FDIC insurance. Since the uninsured deposits are at a higher risk were a bank to fail, we expect uninsured depositors to withdraw funds more quickly if

they are concerned about the soundness of a bank receiving an EDO. First, we estimate the impact of the change in the disclosure regime on total deposits, for which we have a longer time series using the following model:

$$\begin{aligned} Y_{it} =& \beta_0 + \beta_1 Post\ EDO_{i\tau} + \beta_2 Disclosure\ Regime_t + \beta_3 Post\ EDO_{i\tau} \times Disclosure\ Regime_t \\ &+ \gamma X_{i\tau-1} + \alpha_i + \delta_t + \epsilon_{it}, \end{aligned} \tag{1}$$

where Y_{it} is the total level of deposits (measured as the natural logarithm). *Post EDO* takes the value of one for the 12 quarters after the EDO has been received and zero for the 12 quarters prior to the receipt of an EDO. *Disclosure Regime* takes the value of one following the change in the disclosure regime in the third quarter of 1989. $X_{i\tau-1}$ is a vector of control variables measured at the quarter prior to the receipt of an EDO, including bank size (natural logarithm of total assets), profitability (measured as the return on assets) and bank liquidity (measured as the ratio of liquid assets relative to total assets). α_i and δ_t are bank and year-quarter fixed effects, respectively. With the full set of fixed effects, the main effect on the disclosure regime is subsumed. Our main coefficient of interest is estimated as β_3, which measures the effect of the disclosure on banks that receive an EDO in the post-disclosure period.

Table 3, Panel A presents our findings and shows that total deposits decrease by 7.0% following the change in the disclosure regime. This drop corresponds to a 5.9% decrease in the share of total deposits in banks' total assets, an economically meaningful amount. We also conduct several robustness analyses by matching on size (total assets) and geographic location (state) of banks receiving an EDO before the change in the disclosure regime to banks receiving an EDO after the change in the regime. These tests show that total deposits for this subset of banks decrease for banks receiving an EDO in the disclosure regime by 3.2%. We also match banks on the severity of an EDO by matching the length of the period of an enforcement action for banks receiving EDOs before and after the change in the regime. For this sample, we find that banks affected by the disclosure see a 4.8% larger drop in deposits

than banks in the non-disclosure regime. Overall, our results indicate that, following an EDO, total deposits decline faster in the disclosure regime compared to the non-disclosure regime.

Next, we split deposits between FDIC insured and uninsured (more at-risk deposits) for a subset of banks receiving an EDO in the disclosure regime. We estimate the following model:

$$\begin{aligned} Y_{it} =& \beta_0 + \beta_1 Treatment_i + \beta_2 Post\ EDO_{i\tau} + \beta_3 Post\ EDO_{i\tau} \times Treatment_i \\ &+ \gamma X_{i\tau-1} + \alpha_i + \delta_t + \epsilon_{it}, \end{aligned} \tag{2}$$

where Y_{it} refers to total deposits, insured deposits and uninsured deposits, measured as natural logarithms. $Treatment$ is an indicator that takes the value of one for banks receiving an EDO and zero otherwise. $Post\ EDO$ takes the value of one for the 12 quarters after the EDO has been received and zero for the 12 quarters prior to the receipt of an EDO. $X_{i\tau-1}$ is a vector of control variables measured at the quarter prior to the receipt of an EDO, including bank size (natural logarithm of total assets), profitability (measured as the return on assets) and bank liquidity (measured as the ratio of liquid assets to total assets). α_i and δ_t are bank and year-quarter fixed effects, respectively. With the full set of fixed effects, the main effect on the $Treatment$ and $Post\ EDO$ indicators are subsumed. Our main coefficient of interest is β_3, which measures the effect of receiving an EDO on deposits.

We present our findings in Table 3, Panel B, which shows that uninsured deposits decrease for banks that receive an EDO in the post-disclosure period by 24.9%. We also observe that total deposits and insured deposits decrease but by smaller amounts (18.4 and 15.0% respectively). This finding is consistent with uninsured depositors responding to enforcement actions once they have been disclosed publicly and suggests that depositors and, more specifically, uninsured depositors impose market discipline on affected banks. Overall, our results are in line with Anbil (2018) and Chen et al. (2018), who find that uninsured depositors respond to the disclosure of bad news by withdrawing their deposits.

For a subset of our sample observations for which we can estimate the cost of core deposits, we also estimate the impact of the enforcement actions in the disclosure regime. We expect the cost of deposits to increase following an enforcement action if banks need to attract core deposits to ensure access to stable funding. Table 3, Panel C results suggest that banks affected by enforcement actions in the disclosure period on average paid 0.083% more on core deposits than unaffected banks.

To address the potential concern that depositors might not know about the existence of enforcement actions and to tie more directly the *disclosure* of enforcement actions (as opposed to the effect of an enforcement action) to bank outcomes, we investigate the press coverage of enforcement actions. We manually search the NewsBank archives for local newspapers for all banks receiving EDOs in our sample across all US states and identify whether the news of an EDO is covered by the media. Figure 10 shows that there is significant variation across years in news coverage of EDOs. We find that on average approximately 10% of all EDOs are covered in the news. We present our findings for a subset of banks that receive an EDO in Table 4. We construct an indicator variable *News Coverage*, which takes the value of one if an EDO receives news coverage by local media in our sample of EDO banks and zero otherwise. As we only observe an indicator for news coverage at the bank level, we do not include bank-level fixed effects in this part of our analysis. We continue to include year-quarter fixed effects. We find that news coverage of an EDO for banks that receive an EDO results in a decrease in log level of uninsured deposits by 85.7%. We also observe that banks with EDOs covered by the local media see a decrease in log levels of insured deposits and total deposits of 41.5% and 51.9%. In future analyses, we plan to identify whether regulators and their actions are mentioned explicitly by the press, which will allow us to understand regulators' exposure to media scrutiny.

4.3. Impact of disclosure on regulators' incentives

In this section, we examine the role of bank-specific characteristics and the changing disclosure regime on the likelihood of receiving an enforcement action for which we employ a

Cox proportional hazard model with time-varying covariates. This model incorporates both the receipt of an EDO as well as the time of the EDO receipt, and allows us to explore the hypothesis that, conditional on a set of covariates, the time to receiving an EDO is systematically related to whether an EDO is publicly disclosed.

The model estimates the probability that a bank will receive an enforcement action in quarter t, given that it has not received an enforcement action in quarter $t-1$. Our main specification is as follows:

$$\begin{aligned} h(t_{ij}) = h_0(t)exp(&\beta_0 Size_{ij} + \beta_1 Capital\ Ratio_{ij} + \beta_2 Asset\ Quality_{ij} + \beta_3 Profitability_{ij} \\ &+ \beta_4 Liquidity\ Ratio_{ij} + \beta_5 \Delta Capital\ Ratio_{ij} + \beta_6 \Delta Liquidity\ Ratio_{ij} + \beta_7 \Delta Loans_{ij} \\ &+ \beta_8 Disclosure\ Regime_j + Year\ Indicators) \end{aligned} \tag{3}$$

The time of an EDO is determined by the first time that the regulator issues an enforcement action. The subscript i represents a bank, and j allows for the incorporation of time-varying covariates. *Disclosure Regime* is an indicator variable that takes the value of one post-FIRREA and zero otherwise. To account for bank-specific characteristics that influence the probability of receiving an EDO, we include size, capital ratio, non-performing assets ratio (as a proxy for asset quality), return on assets (as a proxy for profitability), and liquidity ratio. We expect that banks with higher levels of capital, higher profitability, and more liquid assets are less likely to receive an enforcement action, whereas those with high values of non-performing assets are more likely to receive an enforcement action. We also include several change variables; specifically, changes in capital, liquidity, and loans. Banks with declining capital and liquidity are more likely to receive an EDO, whereas very high loan growth could also invite an EDO from regulators as it might be seen as risky.[11] We lag all explanatory variables by one quarter and provide detailed definitions of our variables

[11] In untabulated results, we also include changes in deposits. However, because changes in deposits and capital are highly correlated, we drop this variable from our main specification.

in Appendix B. The model assumes that bank i's hazard rate at time t_j is the product of some baseline hazard function $h_0(t)$ and the risk factors specified by $exp(\beta_k X_{ij})$, where X represents the vector of explanatory variables in Equation 3.

We restrict our analysis to the years around the change in the regime, specifically 1985–1997. This period includes about four years prior to the change in regulation (Q1 1985 - Q2 1989) and eight years after the change in regulation (Q4 1989 - Q4 1997). As before, we remove EDOs that were received in Q3 1989 (the quarter in which the disclosure regime changed). We expand the period after the change in regulation to eight years to minimize the impact of the period immediately following 1989, which coincides with the aftermath of the savings and loan crisis. Figure 2, for example, shows that the number of EDOs tends to be higher following crises periods. In additional analyses, we restrict the disclosure period to the same number of quarters as the pre-disclosure period and exclude the years immediately following the change in regulation. Specifically, we restrict the disclosure period to Q1 1994 - Q2 1998 and find qualitatively similar results.

Table 5 reports the results of this estimation. We begin by exploring whether the likelihood of receiving an EDO is related to its disclosure. Columns (1) and (2) of the table show that banks are more likely to receive an enforcement action in the disclosure regime. The coefficient estimate of 1.61 for the disclosure regime indicator (column (2)) converts to a hazard ratio of 5 ($e^{1.61}$), suggesting that, conditional on covariates, a bank in the disclosure regime is five times more likely to receive an enforcement action as compared to a bank in the non-disclosure regime. We also note from column (2) that banks with lower levels of capital, higher non-performing assets and lower profitability are more likely to receive an enforcement action. We do not find liquidity to be very significant in predicting the likelihood of an enforcement action.

In columns (3) to (6) of Table 5, we interact each of the variables (capital ratio, non-performing assets, return on assets, and liquidity) with the disclosure regime indicator. In column (3), although the coefficient on *Capital Ratio* remains negative, it is no longer

significant. However, the coefficient on *Capital Ratio* × *Disclosure Regime* is negative and highly significant, leading us to conclude that *Capital Ratio* became a more important determinant of the likelihood of receiving an EDO in the disclosure regime or post-FIRREA. In terms of the hazard ratio, in the non-disclosure regime, a bank in the 75th percentile of *Capital Ratio* was 0.98 times as likely as a bank in the 25th percentile of *Capital Ratio* to receive an EDO. However, post-FIRREA, a bank in the 75th percentile was only 0.55 times as likely as a bank in the 25th percentile of *Capital Ratio* to receive an enforcement action.

Column (4) shows that non-performing assets are a significant predictor of EDOs in both regimes. In the non-disclosure regime, a bank in the 75th percentile of NPA is 1.27 times more likely than a bank in the 25th percentile to receive an EDO. However, in the disclosure regime, this ratio increases to 1.81. We find similar results for ROA in column (5). A bank in the 75th percentile of ROA is almost as likely as a bank in the 25th percentile to receive an EDO in the non-disclosure regime; however, in the disclosure regime, a bank in the 75th percentile of ROA is only 0.76 times as likely to receive an EDO. As before, we do not find the liquidity ratio to be very significant in predicting the likelihood of receiving an enforcement action.

The results in columns (1) to (6) of Table 5 indicate two things: first, that banks are more likely to receive an enforcement action in the disclosure regime, and second, that publicly observable signals such as the capital ratio, NPA, and ROA are stronger determinants of the likelihood of receiving an enforcement action in the disclosure regime, as compared to the non-disclosure regime. The fact that banks are more likely to receive an EDO in the disclosure regime could be related to increased regulatory power and resources due to FIRREA, or because regulators have an increased incentive to appear stricter given the disclosure of their supervisory actions. However, our second finding that publicly observable signals become more important following the change in regulation suggests that the disclosure of EDOs plays a role in the regulators' decision to issue an EDO. This finding is consistent with arguments of Goldstein & Sapra (2014) that disclosure of regulatory actions could cause

regulators to rely less on their private information.

To further address the concern that our results could be driven by increased regulatory attention after the change in regulation, in columns (7) and (8) of Table 5, we control for measures of regulatory attention. We use two different measures of regulatory attention – distance from the regulators' field offices and the Agarwal et al. (2014) measure of regulatory leniency. Distance from the regulators' offices has been used in several studies as a measure of regulatory attention, with the argument being that a resource-constrained regulator is more likely to investigate geographically close firms.[12] We find the distance to the regulators' offices to be significant and positive, suggesting that banks that are farther away are more likely to receive an EDO. We interpret this finding in light of the fact that issuing an EDO is a measure of last resort after other attempts have failed and negotiations between the regulator and the bank have broken down. Therefore, banks that are located farther away from the regulator are more likely to receive an EDO as the regulator is less likely to invest as much time negotiating with these banks.

The second proxy for regulatory attention was developed by Agarwal et al. (2014) and measures the gap in regulatory ratings given to the same bank by state and federal regulators. In general, state regulators tend to be more lenient than federal regulators because they are prone to local level socio-economic pressures. The higher this measure, the more lenient the state regulator is and therefore, the more likely the occurrence of problem banks in that state. Therefore, we expect this measure to be positively associated with the likelihood of receiving an EDO. Consistent with our expectations, in column (8) of Table 5, we find a positive and significant coefficient on the variable *Regulatory Attention*.

Finally, we continue to find that the coefficient on the disclosure regime indicator remains positive and statistically significant even after we have taken into account proxies for regulatory attention. If regulators' increased attention due to the resources conferred by FIRREA explained the likelihood of receiving enforcement actions, then we would have expected mea-

[12] See, for example, Gopalan et al. (2017), Kedia & Rajgopal (2011), and Tomy (2019).

sures of regulatory attention to render the disclosure regime indicator insignificant. However, we do not find this to be the case.

Our results from this section indicate that, in the disclosure regime, regulators are more likely to issue enforcement actions and rely on publicly observable signals of bank quality. We also find that these results continue to hold after including measures of regulatory attention. Although we cannot completely rule out the effect of increased regulatory resources in the disclosure regime driving our results, the inclusion of control variables for regulatory attention as well as the finding that regulators are more likely to rely on publicly observable signals in the disclosure regime, bolsters our argument that regulators' incentives changed partly due to the disclosure of their actions. Next, we assess the impact of the change in the disclosure regime on banks' outcome variables.

4.4. Impact of disclosure on other bank outcomes

In this section, we investigate whether the change in the regulators' incentives and resulting increased oversight affects banks' ability to lend and improve capital and asset quality. We estimate the following difference-in-differences (DiD) model for the subset of banks that receive an EDO before and after the change in the disclosure regime:

$$\begin{aligned} Y_{it} =& \beta_0 + \beta_1 Post\ EDO_{i\tau} + \beta_2 Disclosure\ Regime_t + \beta_3 Post\ EDO_{i\tau} \times Disclosure\ Regime_t \\ &+ \gamma X_{i\tau-1} + \alpha_i + \delta_t + \epsilon_{it}, \end{aligned} \tag{4}$$

where *Post EDO* takes the value of one for the 12 quarters after the EDO has been received and zero for the 12 quarters prior to the receipt of an EDO. *Disclosure Regime* takes the value of one following the change in the disclosure regime in the third quarter of 1989. $X_{i\tau-1}$ is a vector of control variables measured at the quarter prior to the receipt of an EDO, including bank size (natural logarithm of total assets), profitability (measured as the return on assets) and bank liquidity (measured as the ratio of liquid assets relative to total assets). α_i and δ_t are bank and year-quarter fixed effects, respectively. With the full set of fixed

effects, the main effect on the disclosure regime is subsumed. Our main coefficient of interest is estimated as β_3, which measures the effect of the disclosure on banks that receive an EDO.

We present our main findings using this research design in Table 6. Panel A shows the results for the DiD estimation for all banks with EDOs in our sample. The first two columns of each set of results include time fixed effects (models (1), (4) and (7)) and time and bank fixed effects (models (2), (5) and (8)). The third column in each specification (models (3), (6) and (9)) also includes control variables for size, profitability and liquidity measured at the last quarter before the receipt of an EDO and interacted with the *Post EDO* indicator to consider the possibility that bank fundamentals might change as a result of receiving an EDO.

We find that affected banks significantly improve the quality of their portfolios in the disclosure regime. In particular, following the change in the disclosure regime, banks that receive EDOs improve the quality of their asset portfolio by a relative 0.7%, corresponding to 20% of the sample standard deviation. While we observe statistically significant increases in capital ratios in models (4) and (5) in the disclosure regime, these increases are not statistically significant when we control for banks' characteristics. We do not find significant differences for affected banks' loan portfolios in the disclosure regime. In untabulated results for the main effect of receiving an EDO, we find that following the issuance of an EDO, all affected banks on average observe a significant increase in their capital ratios and an improvement in the quality of their assets (with a decrease of non-performing assets).

One concern remains: we have fewer banks in our sample in the non-disclosure period relative to the disclosure period, and these banks might differ on characteristics over and above what we can capture with our fixed effects structure and control variables. Therefore, we create a subsample of banks that received an EDO in the disclosure period that are matched to banks in the non-disclosure period based on their total assets and geographic location. As we have fewer observations in the non-disclosure period, we restrict the geographic match to the same state rather than the same county. Similar to our specifications above, matching

on the geographic location allows us to take into account the unobservable variation in local economic conditions. We present our findings for this subset of banks in Panel B of Table 6. We find similar results to those we document in Panel A. We find a statistically significant effect on the capital ratio, with the average 0.4% (or 12% of the sample standard deviation) increase in the capital ratio in the full specification (column (6)). The incremental impact on asset quality (measured as NPA) is similar, albeit less economically significant, with a relative improvement in the quality of banks' portfolios of 0.7% (or 19.9% of the sample standard deviation). Finally, we match banks based on the severity of the enforcement actions by using the length of the EDO period as our matching variable. Panel C of Table 6 shows similar results: following the change in the disclosure regime, affected banks with similar severity of enforcement actions strengthen their capital ratios and the quality of their portfolios. Overall, we find that following the change in the disclosure regime, banks that receive an EDO improve their capital ratios and the quality of their assets relative to banks that receive EDOs prior to the change in the disclosure regime.

A number of factors could have changed before and after the implementation of FIRREA, which could drive the observed differences in our outcome variables. To account for changes in the macroeconomic and enforcement environments, we create a matched control sample that consists of banks similar to treated banks: that is, banks that should have received an EDO but did not. We match banks within a county by asset size to construct a sample of banks similar in size and geographic proximity. Banks that receive an EDO at a point in time form our treatment sample, and banks that do not receive an EDO form our control sample. In our main analyses, we use a matched sample constructed by one-to-one matching on bank size and geographic proximity.[13] Using matched banks, we create a stacked panel in which each EDO bank and its control bank has 24 quarters of data: 12 quarters before the receipt of an EDO and 12 quarters after, including the quarter when an EDO is received

[13]In untabulated analyses, we also estimate a propensity score model using a selection on observable characteristics and a one-to-one nearest neighbor without replacement matching technique to create our matched control sample.

(*Post-EDO*). We also use the 12 quarters prior to the receipt of an EDO to test whether our treatment and control banks follow the same trends prior to the receipt of an EDO.

Using our matched sample, we compare banks that received an EDO to similar banks that did not receive any enforcement actions before and after the change in the disclosure regime. We introduce an indicator variable for banks that receive an EDO (*Treatment*) but otherwise follow a similar specification as in Equation 4. We estimate the following equation using a triple difference research design (DDD):

$$\begin{aligned} Y_{it} =& \theta_0 + \theta_1 Treatment_i + \theta_2 Post\ EDO_{i\tau} + \theta_3 Treatment_i \times Post\ EDO_{i\tau} \\ &+ \theta_4 Treatment_i \times Disclosure\ Regime_t + \theta_5 Post\ EDO_{i\tau} \times Disclosure\ Regime_t \\ &+ \theta_6 Treatment_i \times Post\ EDO_{i\tau} \times Disclosure\ Regime_t + \gamma X_{i\tau-1} + \alpha_i + \delta_t + \epsilon_{it}, \end{aligned} \tag{5}$$

where θ_6 is the parameter of interest, which measures the effect of the change in the disclosure regime on banks that receive an EDO relative to control banks. We expect θ_6 to be significant if disclosure affects our outcome variables. The sign of θ_6 depends on the outcome variable of interest. Similar to Equation 4, the main effects are subsumed by the fixed effects structure.

We present our main findings for the full DDD model in Table 7. Our matched sample is constructed based on banks' geographic location and size.[14] We find that, on average, banks that receive EDOs in the disclosure regime experience a significant decrease in deposits of 8%. Similar to our earlier results, we continue to find an incremental impact of the change in the disclosure regime on capital ratios, which increase positively and significantly for affected banks in the disclosure period. We observe that affected banks increase their capital ratios by a relative 1.0% or 32% of the sample standard deviation.

[14] Figure 9 shows the geographic distribution of banks that received EDOs versus those that did not across our full sample. As can be seen from the figure, we generally observe multiple banks within the same county, which allows us to match banks cleanly. We use one-to-one matching in a given quarter-year but allow control banks to be reused in later periods as control banks for other treatment banks provided there is no overlap in time. We do not use our treatment banks in the control sample in years before they receive an EDO.

5. Additional analyses

5.1. Relationship between EDOs and bank failure

In this section, we assess the relationship between the disclosure of EDOs and bank failure. In particular, we investigate whether regulators' increased reliance on public signals in the disclosure regime affects their decision to issue enforcement actions for failing banks. On one hand, if disclosure has a disciplining effect on banks, then conditional on receiving an EDO, the likelihood of bank failure should be lower in the disclosure regime. On the other hand, if regulators rely less on their private information in the disclosure regime, they might not issue EDOs when a bank is failing; however, this information is not publicly observable. Therefore, it is unclear whether the disclosure of enforcement actions would decrease bank failure. Given that some risk-taking is optimal for an economy, the number of bank failures should be non-zero. Our objective in this section is not to assess whether bank failures decreased in the new regime, but rather to understand whether the issuance of EDOs is a better predictor of bank failure in the disclosure regime.

To assess whether failing banks are more likely to receive an EDO in the disclosure period, we model the probability of failure as well as the time to failure, conditional on covariates, using a Cox proportional hazard model. The model estimates the probability that a bank will fail in quarter t, given that it has survived up until quarter $t-1$. The main specification is as follows:

$$h(t_{ij}) = h_0(t)exp(\beta_k X_{ijk} + \beta_1 Treatment_i + \beta_2 Disclosure\ Regime_j + Year\ Indicators), \tag{6}$$

where $Treatment$ is an indicator variable that takes the value of one for banks that received an enforcement action and zero otherwise. $Disclosure\ Regime$ is an indicator variable that equals one in the period after the change in regulation and zero otherwise. As in Section 4.3, the subscript i represents a bank, and j allows for the incorporation of time-varying

covariates. X_k is a vector of k control variables based on prior literature and includes size, capital ratio, non-performing assets, liquidity ratio, interest on deposits, and portfolio composition (Lane et al., 1986).

Table 8 presents the results from the estimation of Equation 6. Column (1) shows that, in general, failing banks are less likely to receive an enforcement action. In column (2) of Table 8, we interact $Treatment$ with the disclosure regime indicator and see that in the disclosure regime, failing banks were more likely to receive enforcement actions relative to the non-disclosure regime. In columns (3) and (4), we introduce several control variables and find similar results. Our results in this section show that the disclosure of EDOs resulted in regulators issuing more enforcement actions for failing banks, suggesting that regulators are concerned about the public perception of their actions.

6. Conclusion

Following the financial crisis of 2007-2009, banking regulators were called to increase the transparency of their regulatory and supervisory actions and to release more information. However, the debate regarding whether more information is necessarily better in the setting of interconnected banks prone to runs and contagion has not yet been settled. While proponents of increased regulatory disclosure argue that it facilitates market discipline and improves bank monitoring, critics argue that in the presence of negative externalities and the risk of contagion, increased disclosure might lead to an inefficient allocation of resources. Our paper contributes to this debate by studying the impact of increased disclosure on regulatory incentives. We also investigate the impact of disclosure on market discipline and bank outcomes.

Using a unique setting of a change in the disclosure regime of regulatory enforcement, we provide the first evidence about the effect of disclosure on the supervisors themselves. In particular, we find that in the disclosure period, regulators impose enforcement actions earlier, which is consistent with regulators being concerned about the public perception of

their actions. We also find that regulators are more likely to rely on publicly observable signals in the disclosure regime. Given that regulatory actions are mostly unobservable, the disclosure of enforcement actions creates a mechanism that allows society to monitor regulatory effort and reduces the information asymmetry between taxpayers and regulators.

Furthermore, we find evidence of market discipline as we observe that depositors respond to the disclosure of enforcement actions by withdrawing deposits from affected banks. This effect of disclosure on deposits is stronger for enforcement actions that are covered in the local press. Finally, we show that disclosing regulatory enforcement actions results in improved bank performance. In particular, we find that following the introduction of the disclosure regime, affected banks recover more quickly and improve their capital ratios and the quality of their portfolios. Overall, our paper contributes to the ongoing debate about the impact of disclosure of supervisory actions on regulators, depositors, and banks.

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Appendix A. Events leading up to the disclosure of enforcement actions

August 1981	Ronald Reagan appoints William M. Isaac as chairman of the FDIC. In his first 10 months (August 1981–June 1982), Isaac oversees the disbursement of over $1.5 billion in deposit insurance, three times as much as the FDIC had paid out in its first 47 years of existence. [1]
April 3, 1983	In an environment of mounting bank failures, William M. Isaac argues for regulatory reform through informed investors wielding information regarding banks' problem loans and interest rate vulnerability. [2]
May 1984	Continental Illinois National Bank, with $40 billion in assets, fails. It is the largest bank failure in the FDIC's history. [3]
February 11, 1985	The FDIC proposes making weekly disclosure of the names of banks and employees cited in enforcement actions taken against the 8,850 banks it regulates and solicits comments from the public. [4]
February - May 1985	The FDIC receives 768 comment letters regarding the February proposal, with only 57 favoring the agency's plan. [5]
May 6, 1985	The FDIC votes unanimously to disclose when the FDIC enters a final enforcement action against a bank, rolling back, in part, its February plan. The new rule is set to take effect on January 1, 1986. [6]
October 1, 1985	William M. Isaac leaves the FDIC; L. William Seidman is appointed as chairman. [7]
December 11, 1985	The FDIC prepares a proposal to defer the January 1, 1986, implementation of disclosure policy. Seidman favors postponement in order to move forward in conjunction with the Comptroller of the Currency and the Federal Reserve Board. [8]

March 8, 1989	FDIC Chairman L. William Seidman testifies before the House Banking Committee's Subcommittee on Financial Institutions, stating that the proposed Bush bailout plan for savings institutions does not give the FDIC enough power to act expediently in revoking deposit insurance of member banks, nor does it provide enough independence to the FDIC since the plan gives the President authority to remove the FDIC's chairman and vice chairman at will. [9]
April 6, 1989	The House Banking subcommittee amends the Bush Administration's rescue plan for the savings industry, expanding the FDIC's jurisdiction and insulating it from White House intervention by prohibiting the President from removing the chairman before his four-year term expires. [10]
August 9, 1989	George H.W. Bush signs the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989. FIRREA expands the enforcement authority of bank regulators, giving regulators expanded cease-and-desist authority and the authority to terminate insured banks' coverage more expediently. Regulators are also given the authority to temporarily suspend deposit insurance to a bank with no tangible capital. Enforcement actions were made public under this regulation. [11]

[1] Jack Anderson and Dale Van Atta, "Heroics at the FDIC," The Washington Post, August 4, 1985.

[2] William M. Isaac, "Forum: A Challenge for Financial Regulators Instilling Discipline in Banks," The New York Times, April 3, 1983.

[3] "Federal Deposit Insurance Corporation Historical Timeline." FDIC.

[4] Monica Langley, "FDIC Proposes Full Disclosure of Enforcement," Wall Street Journal, February 12, 1985.

[5] Nathaniel C. Nash, "FDIC Decides to Disclose Disciplinary Actions," The New York Times, May 7, 1985.

[6] Nathaniel C. Nash, "FDIC Decides to Disclose Disciplinary Actions," The New York Times, May 7, 1985.

[7] Kenneth N. Gilpin and Eric Schmitt, "Ex-F.D.I.C. Chairman Said to Form New Firm," The New York Times, January 7, 1986.

[8] Monica Langley, "FDIC May Delay Public-Disclosure Rule for Banks," Wall Street Journal, December 11, 1985.

[9] Nathaniel C. Nash, "FDIC Chairman Asks Changes in Rescue Plan," The New York Times, March 9, 1989.

[10] Nathaniel C. Nash, "Bush Plan On Savings Is Set Back," The New York Times, April 7, 1989.

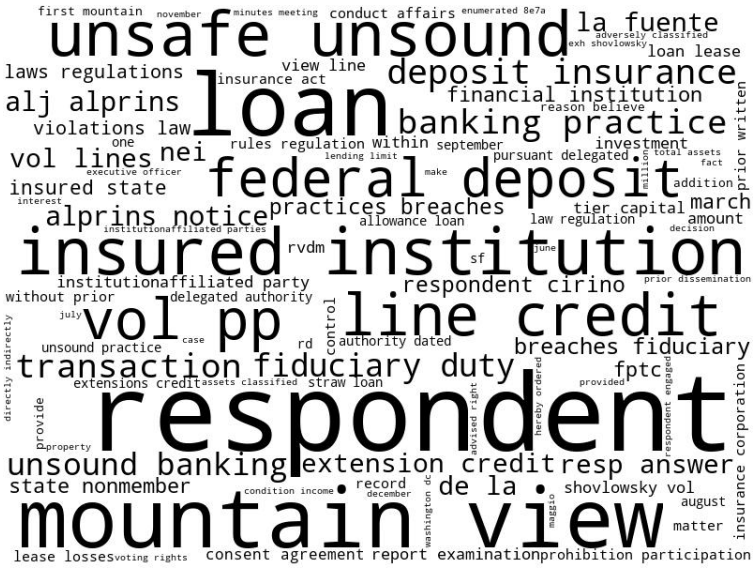
[11] Federal Deposit Insurance Corporation. Division of Research and Statistics. History of the Eighties: Lessons for the Future. (Washington, District of Columbia: Federal Deposit Insurance Corporation, 1997), 101-102.

Appendix B. Variable definitions

Variable	Definition	Source	Code
Capital Ratio	Total equity as a proportion of total assets.	Call Reports	RCFD3210 / RCFD2170
Commercial and Industrial Loans	Ratio of commercial and industrial loans to net total loans.	Call Reports	RCFD1766 / (RCFD1400 - RCFD3123 - RCFD2123)
Cost of Core Deposits	Interest expense on core deposits (year-to-date reporting adjusted to within quarter) divided by quarterly average of core deposits. Expressed as % annual rate (based on Acharya & Mora (2015)).	Call Reports	(RIAD4509 + RIAD4511 + RIADA518 (RIAD4512 before 1997Q1))/ (RCON3486 + RCON3487 + RCONA529 (RCON3469 before 1997Q1)).
Total Deposits	Natural log of total deposits.	Call Reports	log(RCFD2200)
Disclosure Regime	Indicator variable which takes the value of 1 for the period after 1989 Q3 and 0 otherwise.		
Distance	The natural logarithm of the physical distance between the regional functional regulator's office and the bank's headquarters.	SNL and authors' calculations	
Failure	Indicator variable which takes the value of 1 for banks identified by the FDIC as failed banks.	FDIC	
Insured Deposits	Natural logarithm of FDIC-insured deposits (based on Chen et al. (2018) and Balakrishnan (2018)).	Call Reports and authors' calculations	log(RCON2702)
Interest on Deposits	Ratio of interest on deposits to average deposits.	Call Reports	RIAD4170 / RCFD2200
Liquidity Ratio	Ratio of cash and cash equivalents to lagged total assets, where cash is defined as the sum of interest-bearing balances, non-interest bearing balances and currency and coin.	Call Reports	(RCFD0071 + RCFD0081) / RCFD2170
Loans to Total Assets Ratio	Net total loans scaled by lagged total assets.	Call Reports	(RCFD1400 - RCFD3123 - RCFD2123) / RCFD2170

Total Loans	Gross domestic loans and leases minus ending balance allowance for losses minus unearned income on loans and leases.	Call Reports	RCFD1400 - RCFD3123 - RCFD2123
Total Loans to Total Deposits Ratio	Ratio of net total loans to total deposits.	Call Reports	(RCFD1400 - RCFD3123 - RCFD2123) / RCFD2200
News Coverage	Indicator variable which takes the value of 1 if an EDO for a given bank is covered by the local media and 0 otherwise.	NewsBank	
Non-Performing Assets Ratio (NPA)	The sum of non-accruing loans and loans past 90 days but still accruing divided by lagged net total loans.	Call Reports	(RCFD1403+RCFD1407) / (RCFD1400 - RCFD3123 - RCFD2123)
Post EDO	Indicator variable which takes the value of 1 for 12 quarters after the EDO was received for treatment banks and matched control banks and 0 for the 12 quarters prior.	SNL and authors' calculations	
Real Estate Loans	Ratio of real estate loans to net total loans.	Call Reports	RCFD1410 / (RCFD1400 - RCFD3123 - RCFD2123)
Regulatory Attention	Regulatory leniency measure of Agarwal et al. (2014) measured as the difference between average regulatory ratings of federal and state regulators.	Agarwal et al. (2014)	
Return on Assets (ROA)	Net income divided by average total assets.	Call Reports	RIAD4340 / RCFD2170
Size	Total assets of the bank (or natural log of total assets)	Call Reports	RCFD2170
Treatment	Indicator variable which takes the value of 1 if a bank has received an EDO and 0 otherwise	SNL and authors' calculations	
Uninsured Deposits	Natural log of deposits not covered by the FDIC insurance (based on Chen et al. (2018) and Balakrishnan (2018)).	Call Reports and authors' calculations	log(RCFD2200 - RCON2702)

(a) 1990



(b) 2000

(c) 2008

(d) 2017

Figure 1: Word clouds reflecting word frequency for EDOs received by banks in 1990 (a), 2000 (b), 2008 (c) and 2017 (d).

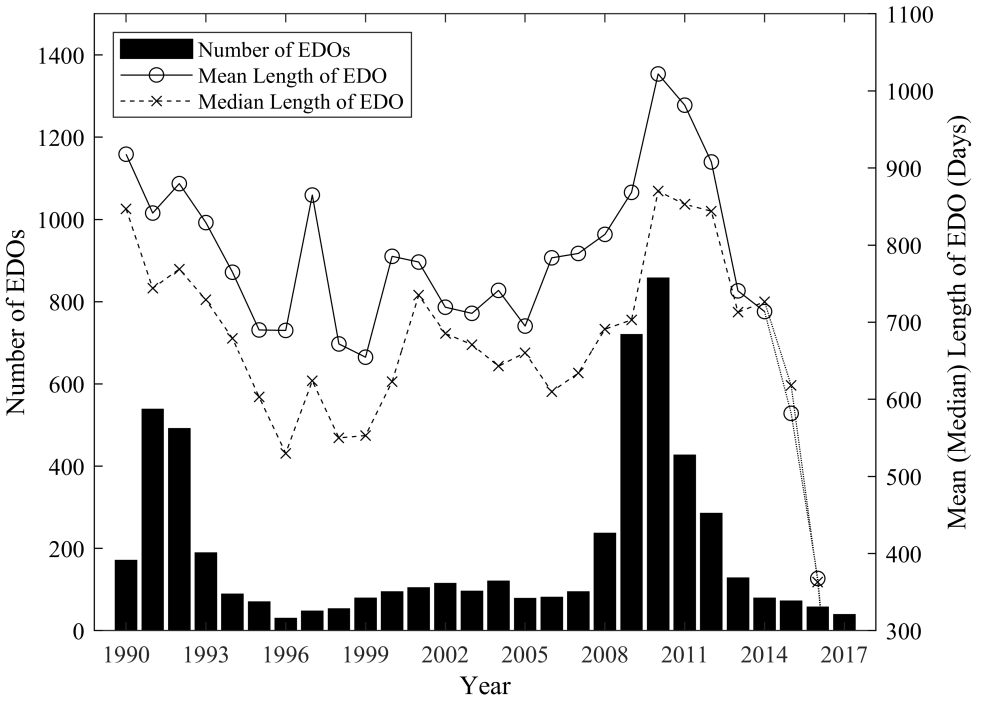


Figure 2: Number and the average length of enforcement actions (EDO)

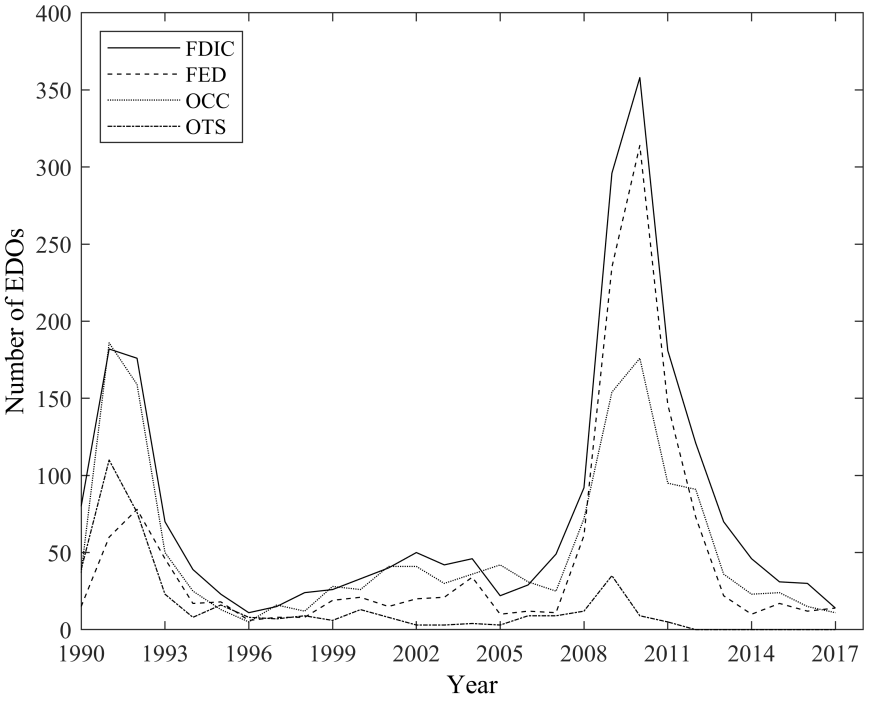


Figure 3: Number of enforcement actions by the primary regulator

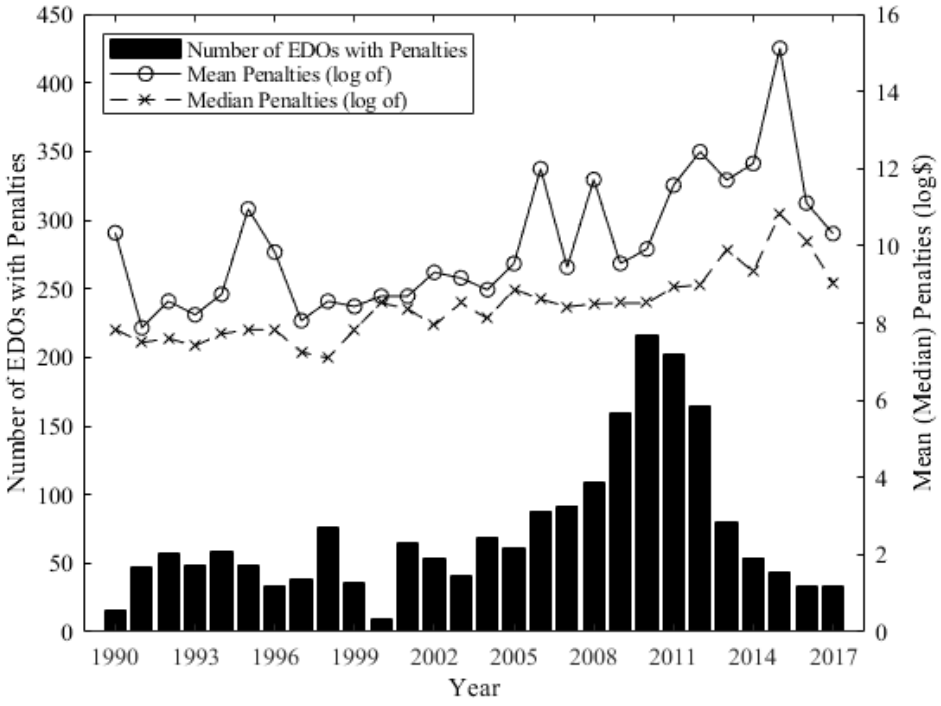


Figure 4: Number of EDOs with penalties and mean (median) penalties by year

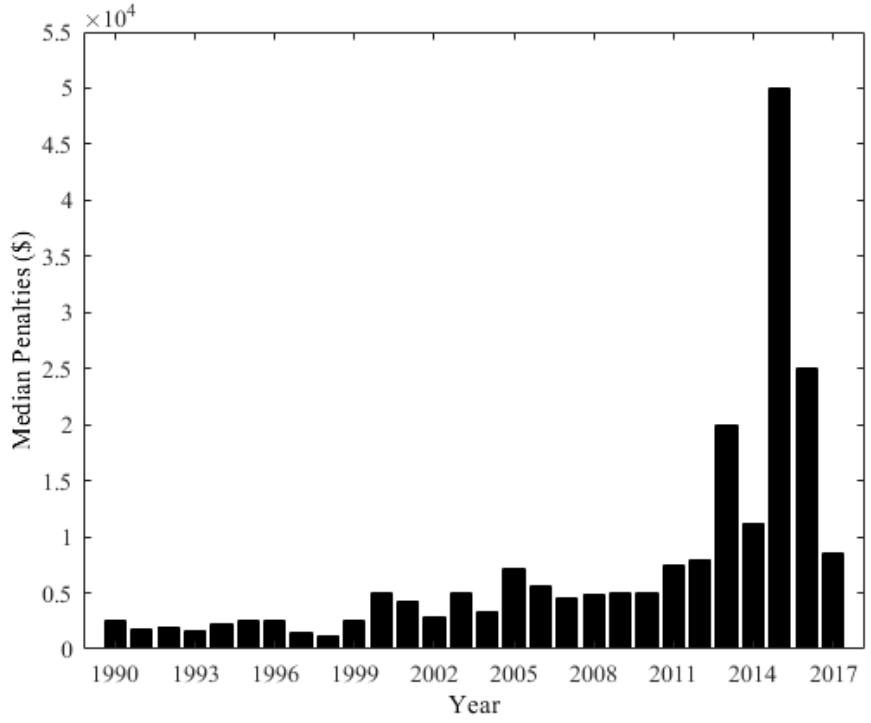
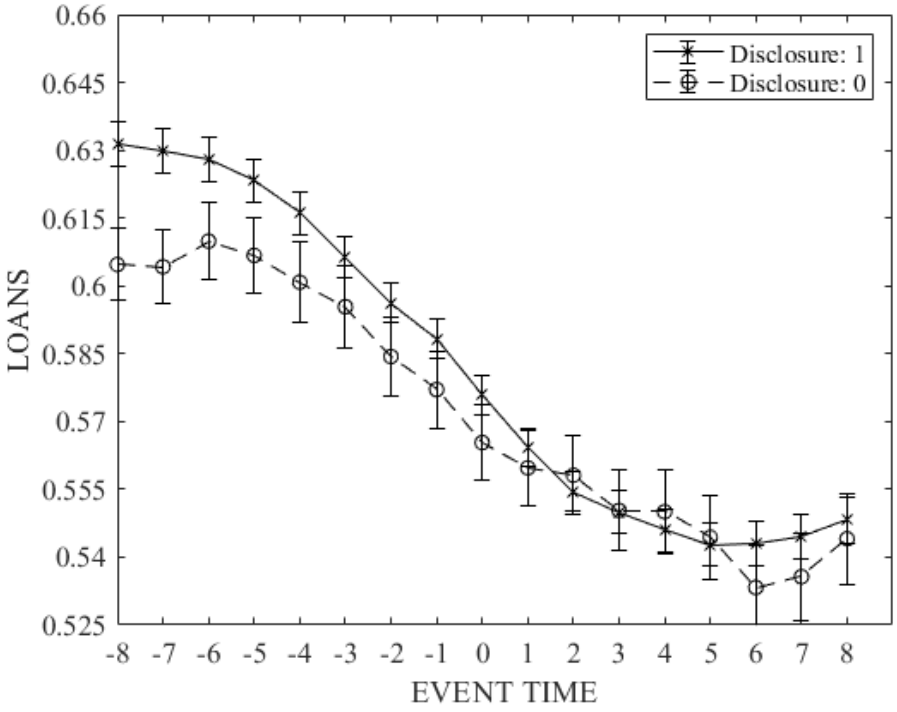
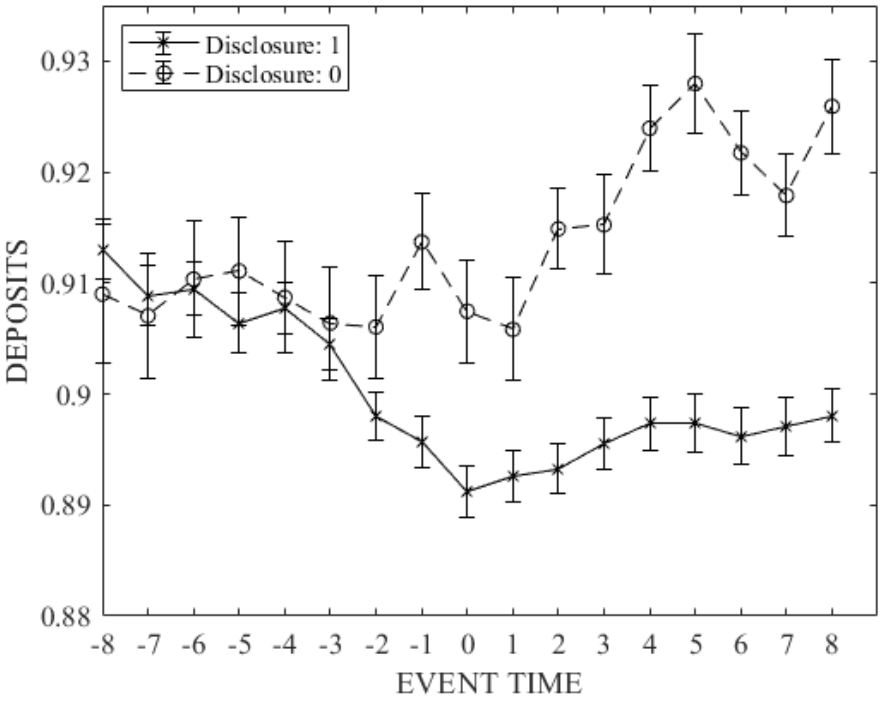


Figure 5: Median values of penalties by year (in $)



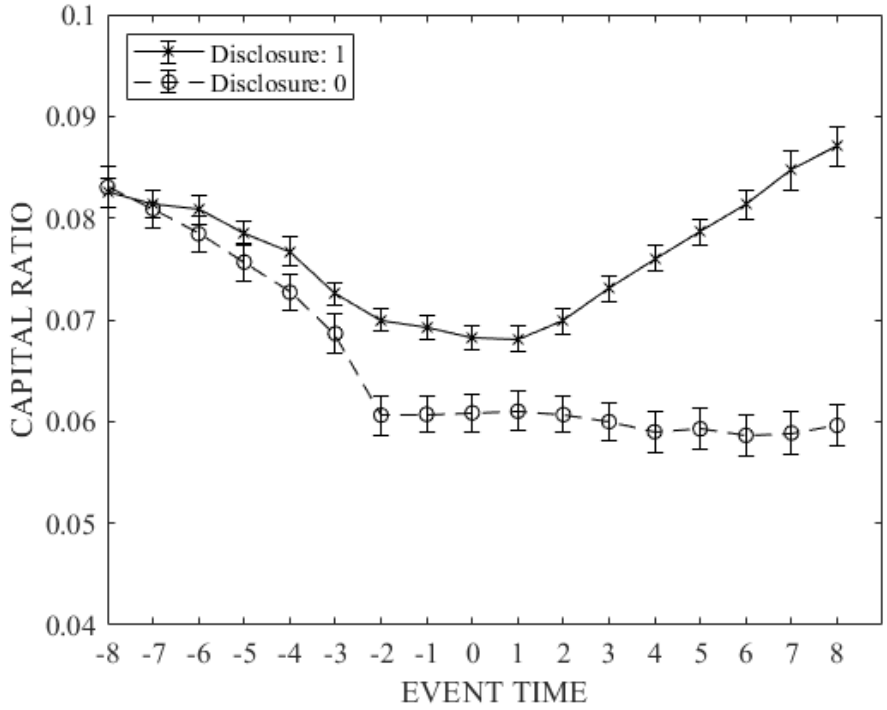
Panel A



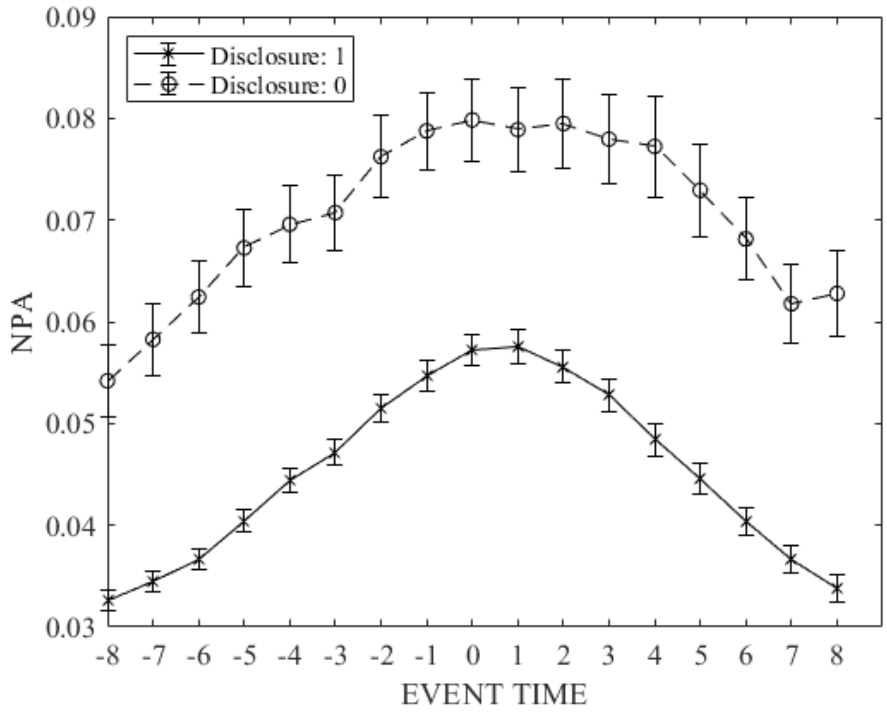
Panel B

Figure 6: Univariate impact of the change in the disclosure regime on loans and deposits.

This figure shows the impact of the disclosure regime on total loans relative to total assets (Panel A) and total deposits relative to total assets (Panel B).



Panel A



Panel B

Figure 7: Univariate impact of the change in the disclosure regime on capital and asset quality (NPA).

This figure shows the impact of the disclosure regime on the capital ratio (Panel A) and non-performing assets relative to total assets (Panel B).

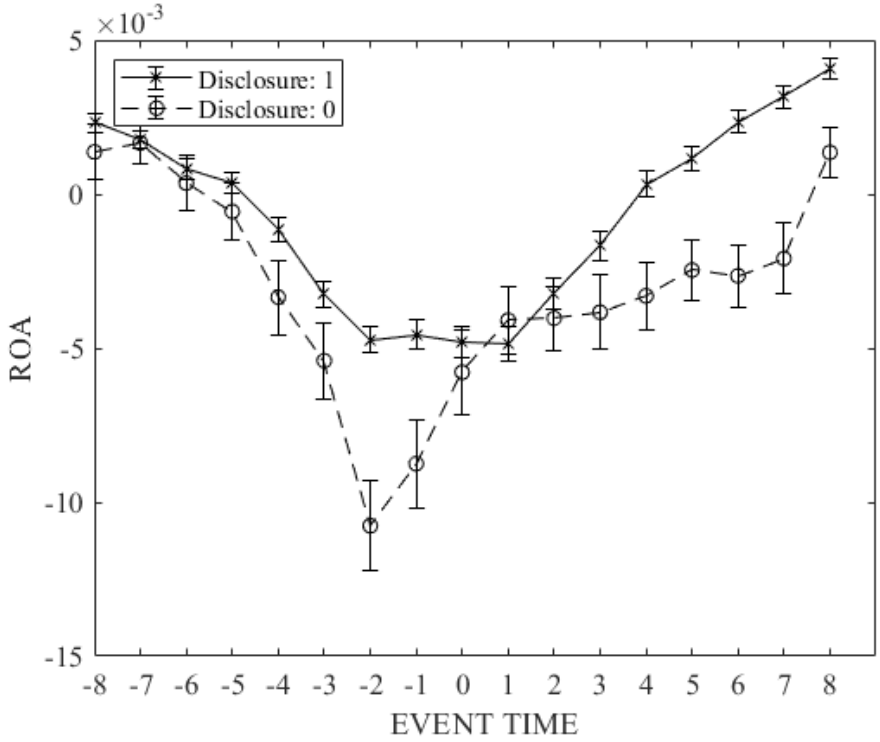


Figure 8: Univariate impact of the change in the disclosure regime on ROA.

This figure shows the impact of the disclosure regime on bank profitability measured as the return on assets (ROA).

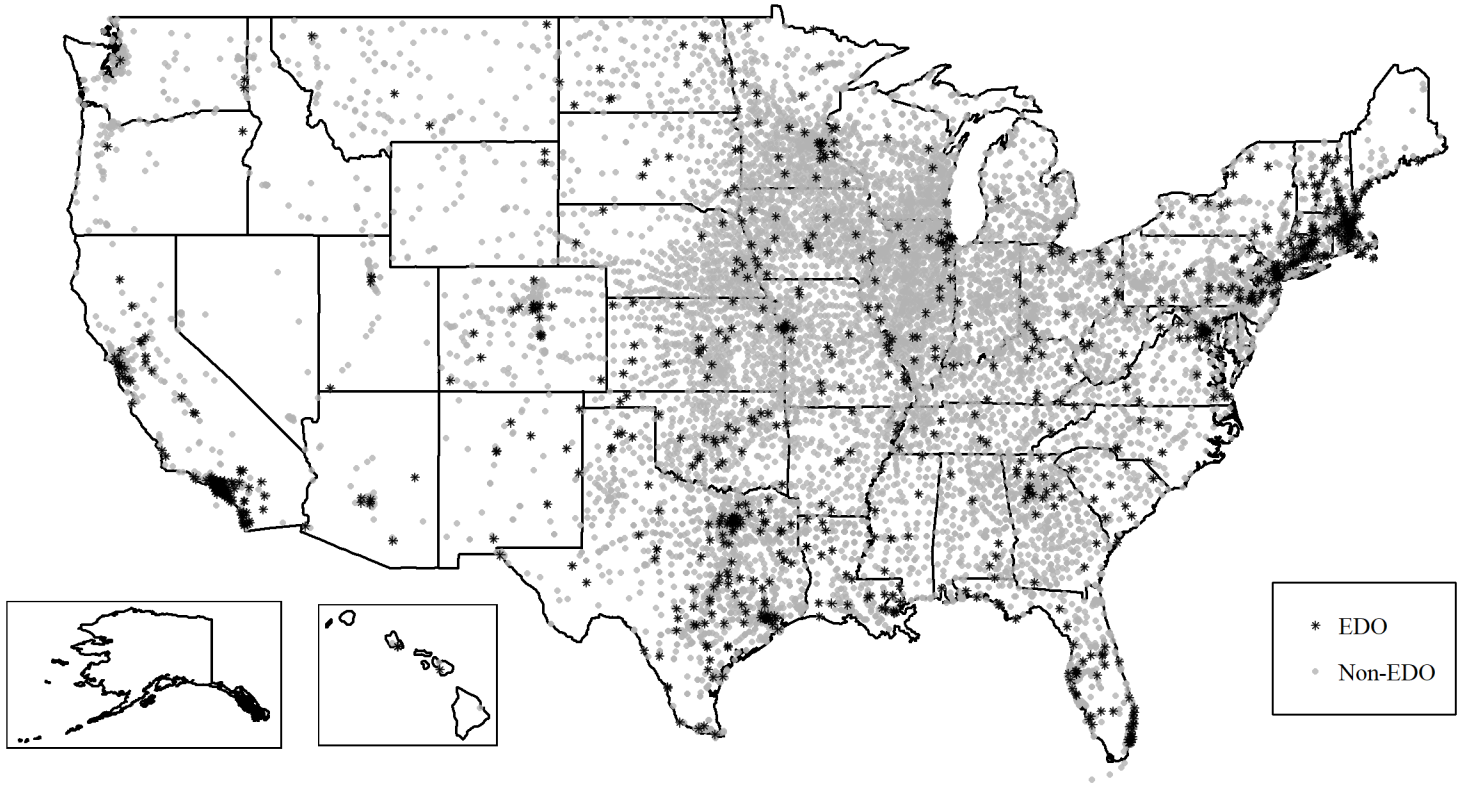


Figure 9: Geographic distribution of EDO and non-EDO banks in the sample

This figure shows the geographic distribution of banks that receive an EDO (*EDO*) relative to banks that do not receive EDOs (*non-EDO*) during our sample period of 1985 to 1997.

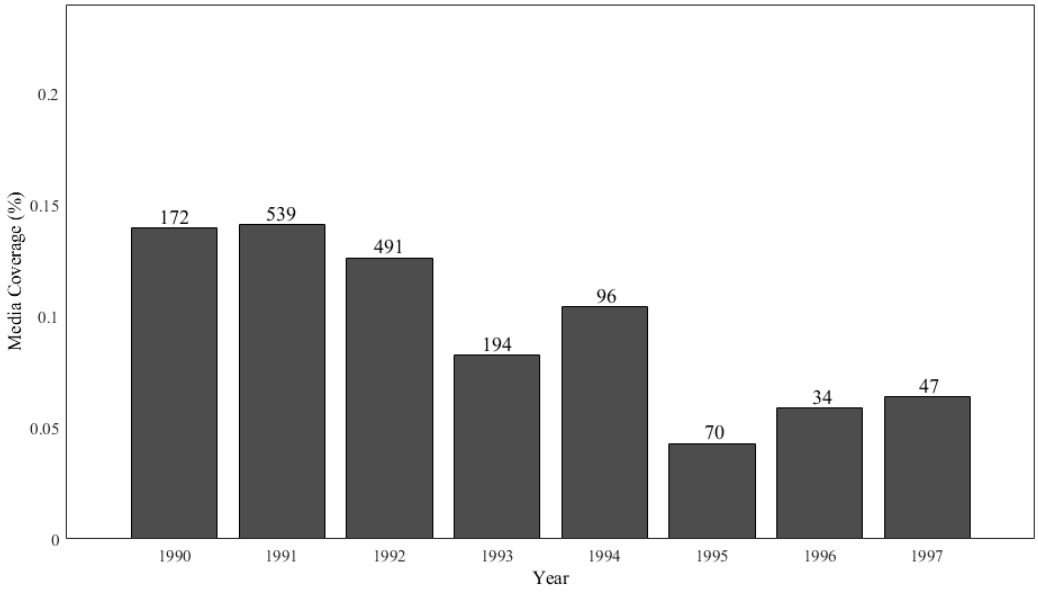


Figure 10: News coverage of EDOs

This figure shows the news coverage of EDOs for banks that received an EDO during the sample period of 1990 to 1997. The bars refer to the percentage of EDOs that received news coverage in a given year. The numbers above the bars represent the total number of EDOs received by banks in that year.

Table 1: Bigrams and textual characteristics of enforcement actions' content

This table presents descriptive evidence of the content and textual characteristics of strict enforcement actions received by banks between 1990 and 2017. Columns (2) to (4) show the most commonly used two-word phrases in a given year (bigrams). Column (5) shows the average number of words per document. Column (6) presents the average FOG index for EDOs in a given year, with higher values indicating more complexity. Column (7) shows the average values of the Flesch Grade Level readability index corresponding to the years of education required to understand a given body of text.

Year	Most Common Phrases (Rank 1)	Most Common Phrases (Rank 2)	Most Common Phrases (Rank 3)	Average Words per Document	Average Gunning-FOG Index	Average Flesch Grade Level Readability
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1990	insured institution	primary capital	unsafe unsound	939	22.61	18.06
1991	unsafe unsound	unsound banking	deposit insurance	1,015	22.23	17.73
1992	unsafe unsound	tier capital	deposit insurance	822	22.93	18.30
1993	unsafe unsound	deposit insurance	federal deposit	610	22.44	17.93
1994	deposit insurance	federal deposit	unsafe unsound	366	22.61	18.31
1995	deposit insurance	federal deposit	unsafe unsound	543	22.97	18.55
1996	federal deposit	deposit insurance	fiduciary duty	381	22.93	18.64
1997	federal deposit	deposit insurance	fiduciary duty	387	22.69	18.67
1998	civil money	money penalty	deposit insurance	624	18.34	14.86
1999	deposit insurance	federal deposit	unsafe unsound	603	22.14	17.86
2000	unsafe unsound	line credit	insured institution	946	23.83	19.23
2001	civil money	money penalty	deposit insurance	495	22.17	17.67
2002	civil money	money penalty	insured institution	710	23.22	18.53
2003	insured institution	civil money	unsafe unsound	745	23.19	18.68
2004	deposit insurance	federal deposit	civil money	486	23.47	18.75
2005	fiduciary duty	practices breaches	breaches fiduciary	365	23.47	19.00
2006	civil money	fiduciary duty	practices breaches	398	24.55	20.18
2007	deposit insurance	federal deposit	civil money	617	22.32	17.72
2008	deposit insurance	federal deposit	banking practices	781	22.50	17.93
2009	deposit insurance	federal deposit	supervisory authorities	952	22.43	17.80
2010	supervisory authorities	deposit insurance	federal deposit	857	22.16	17.63
2011	deposit insurance	federal deposit	insurance corporation	645	21.12	16.50
2012	deposit insurance	federal deposit	insurance corporation	551	21.26	16.76
2013	deposit insurance	federal deposit	insurance corporation	493	20.58	16.18
2014	federal deposit	deposit insurance	insurance corporation	463	20.62	16.25
2015	federal deposit	deposit insurance	insurance corporation	536	21.11	16.61
2016	federal deposit	deposit insurance	insurance corporation	520	21.61	17.26
2017	federal deposit	deposit insurance	insurance corporation	393	18.58	15.67
All	**deposit insurance**	**federal deposit**	**unsafe unsound**	**645**	**22.02**	**17.58**

Table 2: Descriptive statistics

This table presents financial characteristics for our sample of banks, conditional on whether they received an EDO from 1985 to 1997. The variables are measured on a quarterly basis. Differences in characteristics are tested using t-tests of means. All variables are winsorized at the 1% and 99% tails of their respective distributions in each sample year. Variable definitions are provided in Appendix B. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed).

	EDO bank-quarters			Non-EDO bank-quarters				
Variable	N	Mean	Sd	N	Mean	Sd	Difference	(t-statistic)
		(1)			(2)		(1) - (2)	
Total Deposits	1,060	10.891	1.243	568,040	10.736	1.277	0.155***	(4.065)
Loans to Total Assets Ratio	1,060	0.592	0.130	568,721	0.525	0.152	0.068***	(16.982)
Capital Ratio	1,060	0.068	0.032	568,724	0.096	0.058	-0.028***	(-27.862)
Non-Performing Assets Ratio	1,060	0.059	0.061	567,328	0.021	0.042	0.038***	(20.348)
Size	1,060	10.992	1.260	568,724	10.886	1.274	0.106***	(2.738)
Return On Assets	1,060	-0.005	0.016	566,634	0.006	0.015	-0.011***	(-22.573)
Liquidity Ratio	1,060	0.069	0.044	568,714	0.074	0.063	-0.005***	(-3.706)
Insured Deposits	786	10.719	1.151	334,106	10.579	1.255	0.140***	(3.406)
Uninsured Deposits	785	9.348	1.600	331,715	9.135	1.618	0.214***	(3.7363)

Table 3: Impact of the receipt of EDOs on bank deposits

This table presents the results of the impact of the change in the disclosure regime using a difference-in-differences research design for banks that received enforcement actions. Panel A shows the impact of the receipt of an EDO on total deposits (measured as natural logarithms) using various matching approaches over the full sample period. Panel B presents the results on insured and uninsured deposits in the post-disclosure period using a matched sample of banks that received and did not receive EDOs. Panel C shows the results for the impact on the cost of deposits for the post-disclosure period using a matched sample of banks that received and did not receive EDOs. *Treatment* is an indicator variable that takes the value of 1 for banks that receive an EDO and 0 otherwise. *Post EDO* takes the value of 1 for 12 quarters after the EDO was received for treatment banks and for the same quarters for matched banks and 0 for the 12 quarters prior. *Disclosure Regime* takes the value of 1 for the quarters after the introduction of FIRREA in 1989Q3. Control variables are measured at the quarter before the EDO (and the corresponding quarter for matched banks) and interacted with *Post EDO* indicators to mitigate the potential impact of receiving an EDO on banks' fundamentals. To mitigate the effects of extreme observations, all continuous variables are winsorized at the 1% and 99% tails of their respective distributions in each sample year. The sample period is 1985–1997 (full sample period) or 1990–1997 (post-disclosure period). All variables are defined in Appendix B. t-statistics are presented in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed).

Panel A: Sample of EDO banks

	Full sample of EDOs before and after disclosure			Before disclosure EDOs matched to after disclosure EDOs on size and geography			Before disclosure EDOs matched to after disclosure EDOs on the severity of EDO		
	Total Deposits	Total Deposits	Total Deposits	Total Deposits	Total Deposits	Total Deposits	Total Deposits	Total Deposits	Total Deposits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post EDO	-0.578***	-0.039***	-0.352***	-0.106	-0.059***	0.199	-0.268***	-0.047***	0.236
	(-7.174)	(-3.499)	(-3.217)	(-1.140)	(-5.890)	(1.110)	(-2.701)	(-4.021)	(1.427)
Post EDO x Disclosure Regime	0.409***	-0.048***	-0.070***	-0.036	-0.021	-0.032*	-0.280*	-0.050**	-0.048**
	(4.033)	(-3.800)	(-5.251)	(-0.268)	(-1.168)	(-1.759)	(-1.683)	(-2.121)	(-2.111)
Size			0.033***			-0.024			-0.025*
			(3.172)			(-1.381)			(-1.665)
Return On Assets			1.851**			3.943***			3.548***
			(2.415)			(3.648)			(2.992)
Liquidity Ratio			-0.276			0.102			-0.000
			(-0.658)			(0.356)			(-0.001)
Observations	21,522	21,522	21,449	4,816	4,816	4,814	4,924	4,924	4,924
Adjusted R-squared	0.049	0.970	0.972	0.025	0.971	0.972	0.137	0.979	0.980
Reg Type	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Period	All	All	All	All	All	All	All	All	All

Table 3: Impact of the receipt of EDOs on bank deposits, continued

Panel B: Sample of matched EDO and non-EDO banks

	Total Deposits	Total Deposits	Total Deposits	Insured Deposits	Insured Deposits	Insured Deposits	Uninsured Deposits	Uninsured Deposits	Uninsured Deposits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Treatment	0.036			0.035			0.017		
	(0.508)			(0.508)			(0.183)		
Post EDO	0.154***	0.083***	-0.732***	0.148***	0.077***	-0.690***	0.135**	0.081***	-0.634***
	(2.846)	(4.963)	(-4.512)	(2.832)	(4.940)	(-4.335)	(2.000)	(3.525)	(-3.031)
Treatment x Post EDO	-0.206***	-0.206***	-0.184***	-0.143**	-0.166***	-0.150***	-0.344***	-0.289***	-0.249***
	(-3.346)	(-9.297)	(-8.799)	(-2.425)	(-8.327)	(-7.740)	(-4.418)	(-9.176)	(-8.198)
Size			0.072***			0.070***			0.061***
			(4.744)			(4.576)			(3.212)
Return On Assets			1.113			-0.056			5.030***
			(1.405)			(-0.074)			(4.866)
Liquidity Ratio			-0.057			-0.332			0.242
			(-0.164)			(-0.986)			(0.606)
Observations	24,287	24,287	24,224	24,263	24,263	24,202	24,174	24,174	24,116
Adjusted R-squared	0.005	0.971	0.974	0.004	0.970	0.972	0.011	0.945	0.948
Reg Type	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Period	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure

Table 3: Impact of the receipt of EDOs on the cost of deposits, continued

Panel C: Sample of matched EDO and non-EDO banks

	Cost of Core Deposits	Cost of Core Deposits	Cost of Core Deposits
	(1)	(2)	(3)
Treatment	0.130***		
	(3.632)		
Post EDO (4 quarters)	-0.074***	-0.012	0.275
	(-2.821)	(-0.332)	(1.436)
Treatment x Post EDO (4 quarters)	0.036	0.058	0.083**
	(0.967)	(1.452)	(2.007)
Size			-0.025
			(-1.512)
Return On Assets			4.021***
			(2.780)
Liquidity Ratio			-0.222
			(-0.587)
Observations	6,492	6,492	6,475
Adjusted R-squared	0.274	0.640	0.641
Reg Type	OLS	OLS	OLS
Year-Quarter FE	Yes	Yes	Yes
Bank FE	No	Yes	Yes
Cluster	Bank	Bank	Bank
Period	After Disclosure	After Disclosure	After Disclosure

Table 4: Impact of news coverage on bank deposits

This table presents the results of the impact of news coverage for banks that receive an EDO using a difference-in-differences research design for the sample of EDO banks in the post-disclosure period. For all banks in our sample we manually check if the receipt of an EDO is covered by the local media. *News Coverage* is an indicator variable that takes the value of 1 for banks whose EDOs were covered in the local media and 0 otherwise. *Post EDO* takes the value of 1 for 12 quarters after the EDO was received. Control variables are measured at the quarter before the EDO and interacted with *Post EDO* indicators to mitigate the potential impact of receiving an EDO on banks' fundamentals. To mitigate the effects of extreme observations, all continuous variables are winsorized at the 1% and 99% tails of their respective distributions in each sample year. The sample period is 1989Q4–1997. All variables are defined in Appendix B. t-statistics are presented in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed).

	Total Deposits	Total Deposits	Total Deposits	Total Deposits	Insured Deposits	Insured Deposits	Insured Deposits	Insured Deposits	Uninsured Deposits	Uninsured Deposits	Uninsured Deposits	Uninsured Deposits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Post EDO	-0.046	-0.062	-0.095	-10.866***	-0.002	-0.023	-0.032	-9.738***	-0.139***	-0.138**	-0.237***	-13.715***
	(-1.182)	(-1.552)	(-1.468)	(-167.825)	(-0.063)	(-0.609)	(-0.535)	(-53.599)	(-2.687)	(-2.521)	(-2.737)	(-72.901)
News Coverage	0.609***	0.509***	0.520***	0.502***	0.584***	0.460***	0.463***	0.445***	0.737***	0.747***	0.783***	0.765***
	(3.762)	(2.927)	(2.967)	(2.876)	(3.716)	(2.770)	(2.763)	(2.668)	(3.885)	(3.555)	(3.716)	(3.636)
Post EDO x News Coverage		0.150	0.144	-0.519***		0.183	0.178	-0.415**		-0.015	-0.029	-0.857***
		(1.099)	(1.048)	(-2.961)		(1.429)	(1.377)	(-2.554)		(-0.087)	(-0.167)	(-3.875)
Size				0.981***				0.892***				1.203***
				(366.565)				(57.092)				(81.314)
Return On Assets				0.270				1.330*				-0.025
				(0.456)				(1.941)				(-0.017)
Liquidity Ratio				-0.053				-1.431***				3.556***
				(-0.564)				(-5.842)				(9.466)
Observations	12,145	12,145	12,145	12,133	12,144	12,144	12,144	12,132	12,090	12,090	12,090	12,078
Adjusted R-squared	0.026	0.026	0.025	0.683	0.027	0.027	0.026	0.646	0.024	0.023	0.026	0.589
Reg Type	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Year-Quarter FE	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Bank FE	No	No	No	No	No	No	No	No	No	No	No	No
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Period	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure	After Disclosure

Table 5: Likelihood of receiving an enforcement action

This table presents results from estimating a Cox proportional hazard model of the regulators' decision to issue an enforcement action from the period 1985 to 1997. *Disclosure Regime* takes the value of 1 for the quarters after the introduction of FIRREA in 1989Q3. To mitigate the effects of extreme observations, all continuous variables are winsorized at the 1% and 99% tails of their respective distributions in each sample year. All variables are lagged by one quarter and are defined in Appendix B. z-statistics are presented in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Disclosure Regime	1.681***	1.616***	2.275***	0.139	0.761	1.499***	1.580***	1.585***
	(13.38)	(3.17)	(4.15)	(0.24)	(1.40)	(2.83)	(3.07)	(3.06)
Size		-0.038	-0.041*	-0.048**	-0.042*	-0.037	-0.021	-0.039
		(-1.56)	(-1.71)	(-1.97)	(-1.73)	(-1.55)	(-0.82)	(-1.55)
Capital Ratio		-15.570***	-0.696	-15.630***	-15.110***	-15.550***	-15.840***	-15.420***
		(-10.90)	(-0.28)	(-11.06)	(-10.72)	(-10.89)	(-10.79)	(-10.63)
Non-Performing Assets		22.280***	22.420***	10.520***	22.100***	22.240***	22.660***	22.370***
		(23.77)	(24.22)	(6.54)	(24.06)	(23.71)	(23.69)	(23.47)
Return On Assets		-27.930***	-29.810***	-29.480***	4.739	-27.980***	-26.650***	-26.330***
		(-10.06)	(-10.74)	(-10.59)	(0.93)	(-10.07)	(-9.31)	(-9.22)
Liquidity Ratio		-1.111	-1.200*	-1.397**	-1.177*	-2.222	-0.791	-1.142
		(-1.61)	(-1.72)	(-2.01)	(-1.71)	(-1.36)	(-1.11)	(-1.62)
Change in Capital Ratio		0.010	0.009	0.008	0.010	0.010	0.009	0.010
		(1.18)	(1.04)	(0.96)	(1.11)	(1.21)	(1.16)	(1.18)
Change in Liquidity Ratio		-0.003	-0.009	-0.013	-0.025	-0.002	-0.006	-0.002
		(-0.08)	(-0.21)	(-0.30)	(-0.56)	(-0.06)	(-0.13)	(-0.06)
Change in Loans		-0.003	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003
		(-0.80)	(-0.54)	(-0.75)	(-0.81)	(-0.79)	(-0.81)	(-0.77)
Capital Ratio x Disclosure Regime			-17.590***					
			(-6.59)					
Non-Performing Assets x Disclosure Regime				15.210***				
				(8.96)				
Return On Assets x Disclosure Regime					-45.460***			
					(-8.63)			
Liquidity Ratio x Disclosure Regime						1.365		
						(0.76)		
log(Distance)							0.120***	
							(4.52)	
Regulatory Attention								1.560**
								(2.57)
Observations	598,085	571,194	571,194	571,194	571,194	571,194	564,800	564,800
Likelihood Ratio	233.2***	2257***	2294***	2338***	2344***	2258***	2133***	2117***
Wald	179.1***	2431***	2579***	2724***	2747***	2432***	2283***	2261***
Reg Type	Cox Hazard	Cox Hazard	Cox Hazard	Cox Hazard	Cox Hazard	Cox Hazard	Cox Hazard	Cox Hazard
Annual Indicators	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Period	All	All	All	All	All	All	All	All

Table 6: Impact of the disclosure regime on banks that receive an EDO

This table presents the results of the impact of the change in the disclosure regime using a difference-in-differences research design for a subsample of banks that received an EDO. *Post EDO* takes the value of 1 for 12 quarters after the EDO was received for banks that receive an EDO and 0 for the 12 quarters prior. *Disclosure Regime* takes the value of 1 for the quarters after the introduction of FIRREA in 1989Q3. Panel A presents the results of the full sample of banks that received an EDO before and after the change in the disclosure regime. Panel B presents the results for banks that receive an EDO which were matched on geography and size before the change in the disclosure regime. Panel C presents the results for banks that receive an EDO which were matched on the severity of the EDO (measured as the length of time a bank was subject to an EDO). Control variables are measured at the quarter before the EDO (and the corresponding quarter for matched banks) and interacted with *Post EDO* indicators to mitigate the potential impact of receiving an EDO on banks' fundamentals. To mitigate the effects of extreme observations, all continuous variables are winsorized at the 1% and 99% tails of their respective distributions in each sample year. The sample period is 1985–1997. All variables are defined in Appendix B. t-statistics are presented in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed).

Panel A: Full sample of EDO banks

	Loans	Loans	Loans	Capital Ratio	Capital Ratio	Capital Ratio	Non-Performing Assets	Non-Performing Assets	Non-Performing Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post EDO	-0.031***	-0.017***	0.106***	-0.021***	-0.007***	-0.017***	0.032***	0.013***	-0.054***
	(-3.251)	(-3.172)	(4.089)	(-10.847)	(-5.080)	(-2.960)	(8.526)	(4.078)	(-5.976)
Post EDO x Disclosure Regime	-0.026**	-0.005	-0.002	0.011***	0.006***	0.001	-0.023***	-0.009***	-0.007**
	(-2.192)	(-0.839)	(-0.395)	(4.824)	(3.965)	(0.821)	(-5.876)	(-2.842)	(-2.211)
Size			-0.010***			0.001***			0.006***
			(-4.117)			(2.835)			(7.300)
Return On Assets			-0.002			0.776***			-1.001***
			(-0.014)			(18.238)			(-18.522)
Liquidity Ratio			-0.286***			0.027			-0.020
			(-4.879)			(1.502)			(-1.037)
Observations	21,526	21,526	21,452	21,526	21,526	21,452	21,525	21,525	21,452
Adjusted R-squared	0.043	0.748	0.765	0.077	0.678	0.718	0.119	0.480	0.520
Reg Type	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Period	All	All	All	All	All	All	All	All	All

Table 6: Impact of the disclosure regime on banks that receive an EDO, continued

Panel B: Sample of EDO banks, matched on size and geography

	Loans	Loans	Loans	Capital Ratio	Capital Ratio	Capital Ratio	Non-Performing Assets	Non-Performing Assets	Non-Performing Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post EDO	-0.008	-0.017***	0.201***	-0.017***	-0.003**	0.012	0.025***	0.008**	-0.054*
	(-0.690)	(-3.020)	(2.736)	(-6.385)	(-2.328)	(0.723)	(5.358)	(2.364)	(-1.881)
Post EDO x Disclosure Regime	-0.023	-0.010	-0.014	0.010***	0.005***	0.004*	-0.017***	-0.007*	-0.007**
	(-1.194)	(-1.169)	(-1.535)	(2.862)	(2.600)	(1.705)	(-3.147)	(-1.969)	(-1.977)
Size			-0.019***			-0.001			0.006**
			(-2.710)			(-0.941)			(2.291)
Return On Assets			0.859**			0.451***			-0.195
			(2.122)			(3.286)			(-0.845)
Liquidity Ratio			-0.255**			0.019			-0.025
			(-2.066)			(0.373)			(-0.466)
Observations	4,816	4,816	4,814	4,816	4,816	4,814	4,816	4,816	4,814
Adjusted R-squared	0.044	0.692	0.700	0.134	0.646	0.653	0.175	0.526	0.530
Reg Type	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Period	All	All	All	All	All	All	All	All	All

Table 6: Impact of the disclosure regime on banks that receive an EDO, continued

Panel C: Sample of EDO banks, matched on the severity (length) of EDO

	Loans	Loans	Loans	Capital Ratio	Capital Ratio	Capital Ratio	Non-Performing Assets	Non-Performing Assets	Non-Performing Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Post EDO	-0.015	-0.022***	0.090*	-0.022***	-0.005***	0.000	0.023***	0.008**	-0.070***
	(-1.114)	(-3.700)	(1.753)	(-7.120)	(-3.046)	(0.024)	(4.826)	(2.529)	(-2.890)
Post EDO x Disclosure Regime	-0.055**	-0.016*	-0.015	0.007	0.006**	0.005**	-0.011**	-0.004	-0.007*
	(-2.506)	(-1.683)	(-1.517)	(1.552)	(2.555)	(2.032)	(-2.032)	(-1.009)	(-1.773)
Size			-0.009*			-0.000			0.007***
			(-1.897)			(-0.314)			(3.341)
Return On Assets			0.919***			0.498***			-0.268
			(2.868)			(3.136)			(-1.224)
Liquidity Ratio			-0.134			0.028			-0.011
			(-0.920)			(0.516)			(-0.230)
Observations	4,927	4,927	4,927	4,927	4,927	4,927	4,927	4,927	4,927
Adjusted R-squared	0.043	0.769	0.772	0.109	0.700	0.711	0.126	0.503	0.511
Reg Type	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Period	All	All	All	All	All	All	All	All	All

Table 7: Impact of the disclosure regime on banks (matched sample)

This table presents the results of the impact of the change in the disclosure regime using a triple difference research design for the full sample of banks that received an EDO (*Treatment*) and those that did not (matched control banks) using a full sample period. *Post EDO* takes the value of 1 for 12 quarters after the EDO was received for treatment banks and for the same quarters for matched banks and 0 for the 12 quarters prior. *Disclosure Regime* takes the value of 1 for the quarters after the introduction of FIRREA in 1989Q3. Control variables are measured at the quarter before the EDO (and the corresponding quarter for matched banks) and interacted with *Post EDO* indicators to mitigate the potential impact of receiving an EDO on banks' fundamentals. To mitigate the effects of extreme observations, all continuous variables are winsorized at the 1% and 99% tails of their respective distributions in each sample year. The full sample period is 1985–1997. All variables are defined in Appendix B. *t*-statistics are presented in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed).

	Loans	Loans	Loans	Total Deposits	Total Deposits	Total Deposits	Capital Ratio	Capital Ratio	Capital Ratio	Non-Performing Assets	Non-Performing Assets	Non-Performing Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Treatment	0.076***			0.020			-0.013***			0.017***		
	(8.355)			(0.261)			(-5.999)			(7.803)		
Post EDO	-0.033**	0.008	0.133***	-0.392***	0.056***	-0.418***	0.003	0.002	-0.015***	0.002	-0.000	-0.038***
	(-2.368)	(1.032)	(6.011)	(-3.996)	(2.798)	(-4.583)	(1.299)	(1.083)	(-2.924)	(0.576)	(-0.190)	(-6.177)
Treatment x Post EDO	0.003	-0.031***	-0.026***	-0.187	-0.144***	-0.117***	-0.025***	-0.011***	-0.005**	0.030***	0.013***	0.005
	(0.200)	(-3.478)	(-2.997)	(-1.434)	(-7.071)	(-5.697)	(-7.492)	(-4.674)	(-2.281)	(5.985)	(3.034)	(1.133)
Treatment x Disclosure Regime	-0.005	-0.001	-0.001	0.040	0.003	0.007	-0.004	-0.010***	-0.010***	0.001	0.006***	0.006***
	(-0.498)	(-0.083)	(-0.188)	(0.493)	(0.151)	(0.406)	(-1.452)	(-5.183)	(-6.181)	(0.248)	(2.786)	(3.087)
Post EDO x Disclosure Regime	0.010	-0.003	0.001	0.449***	0.015	0.001	-0.013***	-0.004**	-0.006***	0.003	0.000	-0.002
	(0.627)	(-0.387)	(0.097)	(3.896)	(0.656)	(0.030)	(-3.980)	(-2.088)	(-3.062)	(0.731)	(0.022)	(-0.718)
Treatment x Post EDO x	-0.039**	-0.002	-0.004	-0.047	-0.076***	-0.080***	0.026***	0.013***	0.010***	-0.026***	-0.009**	-0.005
Disclosure Regime	(-2.070)	(-0.216)	(-0.410)	(-0.328)	(-2.960)	(-3.335)	(7.026)	(5.033)	(4.225)	(-5.039)	(-2.095)	(-1.095)
Size			-0.010***			0.044***			0.001***			0.004***
			(-5.336)			(5.086)			(3.130)			(7.494)
Return On Assets			0.324***			1.237*			0.716***			-0.874***
			(2.643)			(1.960)			(18.234)			(-19.833)
Liquidity Ratio			-0.249***			-0.058			0.028**			-0.021*
			(-5.839)			(-0.243)			(2.414)			(-1.847)
Observations	40,186	40,186	39,983	40,129	40,129	39,930	40,186	40,186	39,983	40,030	40,030	39,833
Adjusted R-squared	0.062	0.790	0.811	0.053	0.966	0.971	0.089	0.720	0.759	0.181	0.546	0.571
Reg Type	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Year-Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Period	All	All	All	All	All	All	All	All	All	All	All	All

Table 8: Likelihood of failure for banks with EDOs

This table presents results from estimating a Cox proportional hazard model of time to bank failure. *Disclosure Regime* takes the value of 1 for the quarters after the introduction of FIRREA in 1989Q3. *Treatment* takes the value of 1 for banks that received an EDO. To mitigate the effects of extreme observations, all continuous variables are winsorized at the 1% and 99% tails of their respective distributions in each sample year. The full sample period is 1985-1997. All variables are lagged by one quarter and are defined in Appendix B. z-statistics are presented in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$ (two-tailed).

	(1)	(2)	(3)	(4)
Disclosure Regime	-0.012	-0.324	1.248**	1.239*
	(-0.04)	(-0.97)	(2.00)	(1.95)
Treatment	-0.410***	-4.916***	-4.689***	-4.721***
	(-4.44)	(-4.91)	(-4.69)	(-4.72)
Treatment x Disclosure Regime		5.714***	4.502***	4.541***
		(5.68)	(4.47)	(4.51)
Size			-0.223***	-0.209***
			(-8.52)	(-7.88)
Capital Ratio			-80.684***	-80.470***
			(-35.24)	(-35.04)
Non-performing assets			13.487***	13.432***
			(18.89)	(18.82)
Return on Assets			-22.660***	-23.466***
			(-10.85)	(-9.85)
Liquidity Ratio			-3.607***	-3.815***
			(-6.13)	(-6.38)
Interest on Deposits				-2.002
				(-0.60)
Commercial and Industrial Loans				0.197***
				(2.84)
Real Estate Loans				-0.511***
				(-2.91)
Observations	617,983	617,983	612,137	611,947
Likelihood Ratio	94.9***	363.1***	7,589.1***	7,607.7***
Wald	63.4***	128.2***	4,592.0***	4,582.2***
Reg Type	Cox Hazard	Cox Hazard	Cox Hazard	Cox Hazard
Annual Indicators	Yes	Yes	Yes	Yes
Period	All	All	All	All