

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

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Abstract

Regulatory disclosure requirements induce market discipline and facilitate efficient allocation of resources by increasing firm transparency. However, disclosure also increases the visibility of regulatory actions, which influences the behavior of regulators. We study the effect of disclosure on regulators' incentives 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 sample of 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 disclosure leads to a decline in deposits and improves banks' capital ratios and asset quality. Furthermore, we find that enforcement actions are a stronger predictor of bank failure in the disclosure regime and that the disclosure of enforcement actions accelerates bank failure.

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1. Introduction

Regulatory agencies disclose some of their supervision activities to allow investors and stakeholders to distinguish between risky and less risky entities and therefore impose market discipline. Regulators' activities allow them to collect and produce otherwise unobserved information. Disclosing this information to the public could reduce information asymmetry between a regulated firm and its stakeholders and improve the informativeness of market prices and the allocation of resources (Goldstein & Sapra, 2014; Goldstein & Leitner, 2018; Jin & Leslie, 2003; Duro et al., 2019). While prior studies have documented the impact of disclosure of regulatory information on the regulated entities, academic literature is largely silent about the effect of disclosure of regulatory information on regulators and their incentives.

We address this gap in the literature by studying the effect of disclosure on regulators themselves and ask how the observability of regulators' actions influences their regulatory effort. On one hand, when their 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 become observable. Goldstein & Sapra (2014) argue that the disclosure of regulators' actions impacts their credibility and reputation and therefore has a disciplining effect on the regulator. 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 the unique setting of the 1989 change in the disclosure regime, which required U.S. 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 to 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 its issuance, the name of the bank, and the regulator who issues the enforcement action. We also hand-collect a subset of enforcement actions in the pre-disclosure period from the U.S. National Archives and Records Administration.²

Enforcement actions (also referred to as Enforcement Decisions and Orders or EDOs) are an important regulatory tool used by bank regulators and supervisors to force a bank to take corrective actions.³ Although bank regulators have issued enforcement actions since 1966, contemporaneous information on enforcement actions was publicly disclosed only from August 9, 1989 following the passage of the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA).⁴ These orders are an early warning sign to stakeholders about issues at the bank and convey information on actions 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; Hirtle et al.,

¹Several 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).

²Ideally, we would have liked to obtain the full set of enforcement orders issued in the non-disclosure regime directly from the regulator instead of collecting this information from termination documents and a subset we were able to retrieve from the National Archives. 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 for other years.

³In line with other research in this domain, we use the terms regulators and supervisors interchangeably.

⁴We discuss events leading up to the passage of this Act in greater detail in [Section 2](#) below.

2019). Violation of an enforcement action is a serious offense and could lead to monetary penalties or the withdrawal of deposit insurance.

The disclosure of enforcement actions has considerable repercussions for a bank, as evidenced by bank managers' vigorous opposition to the regulator's proposal to disclose these actions. Out of 768 comment letters that the FDIC received in response to its proposed regulation, 711 (or 93%) opposed the plan to disclose enforcement actions. These comment letters show bank managers' sentiment toward the disclosure of enforcement actions and document arguments presented by bank managers opposing the proposed disclosure. For instance, the American Bankers Association contended that the proposed regulation would "decrease the overall safety and soundness of insured banks due to public and media misperceptions concerning the information published." The Independent Bankers Association of America stated that disclosure of enforcement actions would rely heavily on "nonexistent market discipline." Individual bank managers also sent letters opposing increased disclosure. For example, the Executive Vice President of the First National Bank of Phillipsburg, Kansas, wrote:

How many people in rural America, or any other part of our American society, would understand the required annual reports, quarterly reports and current reports, not to mention, ... any enforcement action that might be required of a bank by bank regulators? ... I am quite sure that three-fourths of my hourly staff, and one-fourth of my salaried officers do not understand the reports or the operations and enforcement actions that the OCC and FDIC can require of a bank, what they mean or how serious they are ... [disclosure] will only lead to confusion and journalistic misinterpretation that will allow for information to be taken out of context and seriously mislead a community as to the actual financial conditions of banks within it.⁵

⁵These quotes are from the following comment letters: American Bankers Association, August 19, 1987; Independent Bankers Association of America, August 26, 1987; The First National Bank, June 27, 1987. We

Disclosure increases the cost of receiving an EDO, making banks less likely to cooperate with the regulator. Furthermore, disclosure could also affect regulators' reputation and the credibility of their actions. Therefore, we expect the change in the disclosure regime to influence regulators' decisions to issue enforcement actions. We begin our analyses by first studying the changes in regulators' incentives to issue enforcement actions and their reliance on publicly observable signals. We employ a Cox proportional hazard model that predicts the receipt and the time to receiving an EDO, conditional on a set of time-varying covariates. We find that in the disclosure regime, regulators are four 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 1.48 times as likely as a bank in the 25th percentile to receive an enforcement action. However, in the disclosure regime, a bank in the 75th percentile is 1.78 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 (profitability) was 0.71 (0.88) times as likely to receive 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 0.56 (0.75) 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](#)).

Proponents of increased disclosure argue that it enhances market discipline by depositors and investors because additional information allows stakeholders to allocate capital away

present additional examples of excerpts from comment letters in [Appendix D](#).

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 or provide them with information (Leitner, 2014).

Therefore, in our second set of analyses, we investigate 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) declines by 3.0% to 6.3% relative to the level of deposits in the non-disclosure regime. This translates to a 2.7% to 5.7% share of total assets. We also study the impact on uninsured depositors, 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. We find a large and significant decline in uninsured deposits. 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. The literature finds that depositors tend not to pay attention to financial disclosures (Adams et al., 2019), suggesting that depositors do not continuously monitor a bank based on call reports. However, given their saliency and seriousness, depositors react to disclosures of enforcement actions, particularly, when they are covered in the local news media. In additional tests, we find that greater press coverage of enforcement actions is associated with a larger decline in deposits.⁶

⁶It is possible that public banks disclose information about enforcement actions in the pre-disclosure

Next, we study the effect of regulatory disclosure on other bank outcomes by comparing loans-to-assets ratios, 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 improve 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 particular, we observe that banks receiving enforcement actions are 43% to 49% more likely to fail in the disclosure regime. In contrast, failing banks are less likely to receive an enforcement action in the non-disclosure regime. To investigate whether the disclosure of EDOs could have accelerated bank failure, we estimate accelerated failure-time models and find that, conditional on failure, banks that receive an EDO in the disclosure regime fail 70% faster than banks that receive EDOs in the non-disclosure regime. These findings reinforce the argument that regulators are concerned about the observability of their actions and change their behavior following the disclosure of enforcement actions.

Our study contributes to the literature across several dimensions. First, our research speaks to the broader literature on regulatory incentives and supervisory actions in all sectors of the economy, not just banking (Agarwal et al., 2014; Costello et al., 2019; Duro et al., 2019; Granja & Leuz, 2017; Kedia & Rajgopal, 2011; Peltzman, 1976; Stigler, 1971). For example, Jin & Leslie (2003) find that the disclosure of restaurant hygiene cards results in increased consumer sensitivity to hygiene and improved health outcomes. Duro et al. (2019) and Dechow et al. (2016) document that the SEC’s disclosure of comment letters leads to increased market discipline by investors and changes firm behavior. Similarly, disclosure of the

period if it is material. However, public banks represent less than 5% of our sample, and our search of local news produced very few mentions of EDOs in the pre-disclosure regime.

Public Company Accounting Oversight Board (PCAOB) inspection reports and enforcement actions imposes costs on affected firms and results in investor and client reactions (Boone et al., 2015; Dee et al., 2011; DeFond, 2010; Lennox & Pittman, 2010). We contribute to this literature by investigating a relatively unexplored angle regarding the impact of disclosure on supervisors and their supervisory efforts. 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 their reliance 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; Goldstein & Leitner, 2018; 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; Ellahie, 2013; Gilbert & Vaughan, 2001; Peristiani et al., 2010; Roman, 2016; Wheeler, 2019). We add to these studies by providing evidence that disclosure of bank enforcement actions improves bank capital and the quality of their loan portfolios.

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 administrative 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 process for issuing an enforcement order starts with bank examiners giving a low CAMELS rating of 4 or 5 at the end of their examination of a bank and making a recommendation to their regional directors to initiate proceedings against a

bank.⁷ Once the regional director has reviewed the recommendation from bank examiners, the director writes to the FDIC Board of Review in Washington D.C. The Board meets several times a month and reviews proposals for issuing enforcement actions recommended by various regional FDIC directors. If the Board decides to proceed, they issue a “Notice of Charges and of Hearing” and notify the bank directors and its board. The bank then has two options: either to consent to the notice, in which case a formal order is issued shortly after, or contest the charges, in which case a formal hearing is scheduled. Depending on the outcome of the hearing proceedings and recommendations of the administrative law judge (ALJ), the FDIC makes a decision to either proceed with the order or terminate the proceedings. Once an order is issued, the bank has to take the corrective actions specified in the order. Upon successful completion of the required actions and improved CAMELS ratings from bank examiners, the regional director makes a proposal to the FDIC Board of Review to terminate the enforcement action. If the Board agrees, a termination order is issued. If a bank fails to satisfy the requirements of the order, the FDIC has the power to enforce it in U.S. district courts or terminate the bank’s deposit insurance. If a bank fails, a formal termination order is issued. If a bank is acquired or merges with another bank, the original order remains under the original name of the bank, and the order is only terminated once the regional director and bank examiners are satisfied that the new entity has met the requirements spelled out in the original order. Sometimes, enforcement orders are modified to include additional conditions or requirements. The primary reason for issuing a formal enforcement order is to force the affected bank to take corrective actions (Curry et al., 1999; Hirtle et al., 2019; Srinivas et al., 2015). We provide a schematic description of the Cease & Desist enforcement order process in [Appendix C](#).

The move from a non-disclosing regime to a disclosing regime in 1989 followed a series of

⁷CAMELS rating is an acronym for composite and component ratings issued by bank examiners at the end of their examination. The components are based on evaluation of five critical elements of bank operations: capital adequacy, asset quality, management, earnings, liquidity and sensitivity to risk (market and interest rate). The highest rating is 1 and the lowest is 5. CAMELS ratings are not public and are only communicated to senior bank management and regional and national bank regulators.

events, which we summarize in [Appendix A](#) and describe in greater detail in the next few paragraphs. The Savings and Loan (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 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. Citing the fear of bank runs, banks vocally opposed the proposal: of the 768 comment letters received by the FDIC, only 57 were in favor of implementing this change.⁸ Most banks and banking associations argued that the proposed changes would create bank runs and lead to financial instability.⁹ As a result, the proposal 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.¹⁰ 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

⁸See, 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.

⁹In [Appendix D](#), we present some examples of excerpts from comments letters received by the FDIC in the course of its proposals and amended proposals to introduce disclosure of enforcement actions.

¹⁰See “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.

other provision of the law; and (B) any modification or termination of any final order.”¹¹

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 enforcement actions in the pre-FIRREA period, we mainly rely on termination documents that were made public in the post-FIRREA period.¹² 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 primarily rely on these ex-post disclosures to construct our sample of enforcement actions in the non-disclosure regime. In addition to relying on termination actions, we hand-collect a subset of enforcement actions in the pre-disclosure period from the U.S. National Archives for 1983 and 1984.¹³

One drawback of our sampling technique for the pre-FIRREA period is that we essentially 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 only include EDOs that were terminated post-FIRREA if they were issued in 1985–Q2 1989 or about four years before the introduction of the Act. Our estimate of four years is based on the average length of an EDO. In the (pre-) post-FIRREA period, the mean length of an EDO is (1,281) 857 and the median is (1,148) 749 days. The longest EDO was (4,112) 4,307 days and the shortest (93) 18 days. In

¹¹Section 913—Public Disclosure of Enforcement Actions Required of FIRREA.

¹²We refer to pre-FIRREA (post-FIRREA) and pre-disclosure (post-disclosure) regime interchangeably throughout the paper.

¹³Unfortunately, due to confidentiality restrictions, these were the only two years for which we were able to retrieve additional EDOs. We have filed follow up FOIA requests, however, the expected review time is longer than thirty months given the complexity of the data and confidentiality constraints.

addition, we include EDOs for the years 1983–1984 which we hand-collect from the National Archives, expanding our pre-FIRREA sample to years 1983–Q2 1989. In [Figure 1](#) we plot kernel distributions of the length of enforcement actions in the pre- and post-disclosure regimes. As can be seen from the figure, there is significant overlap between the distribution of lengths of EDOs issued in the two regimes.

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.¹⁴ 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) for the post-FIRREA period extending up to 2017, including 193 that are identified as termination orders for enforcement actions issued in the pre-disclosure regime. We identify an additional 109 enforcement orders from our hand-collection exercise, bringing the total number to 302 unique EDOs in our pre-FIRREA sample. We focus on the most severe enforcement actions as described above and on the first EDO a bank receives (if it receives more than one in the course of our

¹⁴PCAs were introduced later in our sample period after FIRREA. However, from our conversations with bank examiners we understand that prior to PCAs, C&D Orders contained similar requirements and corrective measures. In our sample, we do not observe many PCAs and their exclusion from our sample does not change our inferences.

study period). We further restrict our sample to years 1983–1997 to have a more balanced panel around the change in the disclosure regime. Our starting sample contains 1,988 unique severe enforcement actions issued by all bank regulators.¹⁵

We begin by providing 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).¹⁶

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 longest documents, averaging between 822 and 1,015 words. The average length of EDOs in terms of words is 645 words per document, with their complexity requiring on average more than 17 years of education to understand the document. 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 from the FDIC. [Figure 2](#) 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 regulator that issues EDOs in a given year, and the penalties that banks have to pay as a result of receiving an enforcement action. [Figure 3](#) presents the number and average length of

¹⁵All banking regulators refer to the FDIC, Federal Reserve Bank System, OCC and OTS.

¹⁶We 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.

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 4](#) 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).¹⁷ The FDIC issued the highest number of EDOs after the financial crisis in 2010, with more than 350 enforcement actions issued that year.

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 5](#) 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 5](#) and [Figure 6](#), 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 than a quarter of banks that receive an enforcement action are required to pay a monetary remedy.

¹⁷The 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.

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 match our sample of banks that received an EDO to 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. Furthermore, we match banks that received an EDO with banks that did not receive an EDO based on bank characteristics such as size, profitability, capital ratio, and liquidity ratio.¹⁸ For 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. This match isolates the effect of change in the disclosure regime from bank fundamentals due to overall change in enforcement. Finally, we match banks receiving EDOs in the non-disclosure period to banks receiving 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. Our final sample consists of 43,284 bank-quarter observations for the whole sample period of 1983 to 1997, with 1,182 unique banks in the treatment sample. The number of banks in our control sample varies based on the type of match that we employ. We limit our sample to 1997 to decrease the disparity in the sample size between pre- and post-disclosure regime changes. For banks with multiple enforcement actions, we retain the information for the first severe EDO received.¹⁹

¹⁸For our full sample analyses, we also use entropy balance and propensity score matching to identify comparable banks.

¹⁹We restrict the sample to banks that receive an EDO for the first time to avoid contamination of the prediction and outcome tests from changes that occur at a bank as a result of the enforcement action. Overall, of 302 (1680) total enforcement actions in the pre- (post-) disclosure regime, 19 (140) are repeat EDOs issued to the same bank.

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) 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 10.8 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 59.3% of assets invested in loans (52.0% 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 (6.3% relative to 2.2% of banks without EDOs); lower profitability (with an average ROA being negative 0.6% relative to the positive 0.6% for other banks); and lower liquidity (7.0% relative to 7.6%). 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 employ a Cox hazard model to study changes in regulators' incentives in the two regimes and find that, in the disclosure regime, regulators are more likely to issue EDOs as well as rely more on publicly observable signals. Using a difference-in-differences research design and multiple matching techniques, we present evidence to show that disclosure has a large and significant impact on depositors, who withdraw deposits from banks that receive enforcement actions. We also find that the disclosure of EDOs leads to better capital ratios and asset quality.

4.1. Descriptive analyses

We begin our analyses by describing our underlying data with univariate (unconditional means) plots in event time for the period before and after the change in the disclosure regime. We present these results for five different outcome measures: loans-to-total-assets ratio (as a measure of the asset portfolio, LOANS); deposits-to-total-assets ratio (as a measure of banks' ability to receive funding from depositors and a proxy for market discipline, DEPOSITS); capital ratio (as a measure of banks' soundness, CAPITAL RATIO); non-performing assets relative to total assets (as a measure of banks' asset quality, NPA); and return on assets (as a measure of profitability, ROA). Figures 7, 8, and 9 show the mean values for the five outcome variables over 17 quarters centered on the quarter in which the enforcement order is received (*Event time* = 0). 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.

Panel A of Figure 7 shows the average evolution of the loans-to-assets ratio in the quarters before and after an enforcement action. Loans decline before a bank receives an EDO. On average, loans decline faster in the disclosure regime, which we investigate in our multivariate analyses below. In the quarters following the issuance of an EDO, the loans-to-assets ratio improves marginally faster in the disclosure regime.

Panel B of Figure 7 shows a similar plot for the ratio of deposits to total assets. In the quarters leading up to the enforcement action, the graph shows a more precipitous drop in deposits in the disclosure regime as compared to the non-disclosure regime. Whereas the deposit ratio increases following a receipt of an EDO in the non-disclosure regime, it picks up very slowly in the disclosure regime. In later analyses, we study the trend in deposits in a multivariate setting and find that deposits decline following the receipt of an EDO in the disclosure regime relative to the non-disclosure regime, providing evidence consistent with

depositors enforcing market discipline.

Figure 8 presents event time plots for capital and non-performing assets (NPA) ratios. Unlike loans and deposits ratios, banks receive enforcement actions for a less abrupt drop in their capital ratio in the disclosure regime, suggesting that regulators might be intervening sooner. Furthermore, banks improve their capital ratios faster in the disclosure period. Panel B of Figure 8 shows a similar result for NPA. Leading up to an enforcement action, there is an increase in non-performing assets, which declines following the receipt of an EDO. On average, banks also appear to receive enforcement actions at lower levels of NPA in the disclosure regime. NPA decline after receiving an enforcement action in both regimes. Figure 9 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 9 also shows that the recovery of ROA is slower in the non-disclosure regime. Next, we provide more formal and rigorous analyses of changes in regulatory incentives using a multivariate approach and a Cox proportional hazard model.

4.2. Impact of disclosure on regulators' incentives

In this section, we develop a predictive model of bank enforcement actions to study the impact of the change in the disclosure regime on regulators' incentives. We use a measure of county-level news circulation to tie changes in regulators' incentives to the disclosure channel. Finally, we study the impact of differing incentives of state and federal regulators on the decision to issue enforcement actions.

4.2.1. Changes in the determinants of enforcement actions

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 to the receipt of an EDO 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 receives an enforcement action in quarter t , given that it has not received an enforcement action in quarter $t - 1$. We use the following specification to test this model:

$$\begin{aligned}
 h(t_{ij}) = & h_0(t) \exp(\beta_0 \text{Size}_{ij} + \beta_1 \text{Capital Ratio}_{ij} + \beta_2 \text{Asset Quality}_{ij} + \beta_3 \text{Profitability}_{ij} \\
 & + \beta_4 \text{Liquidity Ratio}_{ij} + \beta_5 \Delta \text{Capital Ratio}_{ij} + \beta_6 \Delta \text{Liquidity Ratio}_{ij} + \beta_7 \Delta \text{Loans}_{ij} \\
 & + \beta_8 \log(\text{Distance}) + \beta_9 \text{Disclosure Regime}_j + \text{Year Indicators}),
 \end{aligned} \tag{1}$$

where the time of an EDO is determined by the first time the regulator issues an enforcement action. The subscript i represents a bank, and j allows for the incorporation of time-varying covariates. 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.

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.²⁰ Finally, we include distance from the regulators' field offices as a control variable. Distance from the regulators' offices has

²⁰In untabulated results, we also include changes in deposits. However, because changes in deposits and capital are highly correlated, we do not include this variable in our main specification.

been used in several studies as a measure of regulatory attention and could be predictive of enforcement actions.²¹ We lag all explanatory variables by one quarter and provide detailed definitions of our variables in [Appendix B](#).

We restrict our analysis to the years around the change in the regime, namely, 1983 to 1997. This period includes 6.5 years before the change in the regulation (Q1 1983–Q2 1989) and 8 years after the change in regulation (Q4 1989–Q4 1997). As discussed above, 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 3](#), for example, shows that the number of EDOs tends to be higher following crises periods.²²

[Table 3, Panel A](#) 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 1.386 for the disclosure regime indicator (column (2)) converts to a hazard ratio of 4 ($e^{1.386}$), suggesting that, conditional on covariates, a bank in the disclosure regime is four times more likely to receive an enforcement action as compared to a bank in the non-disclosure regime. We note from column (2) that banks with lower levels of capital, higher non-performing assets, lower profitability and lower liquidity are more likely to receive an enforcement action. Banks with large changes in their capital ratios or loan portfolios also tend to receive enforcement actions with a higher likelihood. The coefficient on the distance to regulators’ field offices is positive and statistically significant, suggesting that banks that are farther away are more likely to receive an EDO. Because formal enforcement actions are a measure of last resort, a resource-constrained regulator may be less willing to spend time negotiating with banks that are farther away, and more willing to use enforcement actions

²¹See, for example, [Gopalan et al. \(2017\)](#), [Kedia & Rajgopal \(2011\)](#), and [Tomy \(2019\)](#).

²²In additional analyses, we restrict the sample to 16 quarters and estimate [Equation 1](#) for various combinations of pre- and post-FIRREA years. Results are presented in [subsection 5.2](#).

for these banks.

In columns (3) to (6) of [Panel A, Table 3](#), we interact each of the variables (capital ratio, non-performing assets, return on assets and liquidity) with the disclosure regime indicator. In column (3), the coefficient on *Capital Ratio* \times *Disclosure Regime* is negative and significant, suggesting that the capital ratio becomes a more important determinant of the likelihood of receiving an EDO in the disclosure regime. In terms of the hazard ratio, a bank in the 75th percentile of *Capital Ratio* was 0.71 times as likely as a bank in the 25th percentile of *Capital Ratio* to receive an EDO in the non-disclosure regime. However, a bank in the 75th percentile was only 0.56 times as likely as a bank in the 25th percentile of *Capital Ratio* to receive an enforcement action post-FIRREA.

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 *Non-performing Assets* is 1.48 times more likely than a bank in the 25th percentile to receive an EDO. However, in the disclosure regime, this ratio increases to 1.78. We find similar results for return on assets in column (5). A bank in the 75th percentile of *Return On Assets* is 0.88 times 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 *Return On Assets* is only 0.75 times as likely to receive an EDO. We do not find the liquidity ratio to be incrementally significant in the disclosure regime.

In column (7), we include all four interactions and find that the results related to non-performing assets and return on assets continue to hold. We lose significance on the capital ratio interacted with the disclosure regime indicator. However, in untabulated analysis, we find a high degree of correlation between the four interacted variables and the disclosure regime indicator, resulting in the risk of multicollinearity. We do not find similar high correlations between the variables in columns (1) to (6). Therefore, we base our interpretations on our findings in columns (1) to (6).

The results in columns (1) to (6) of [Table 3, Panel A](#) 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, non-performing assets and return on assets, are stronger determinants of the likelihood of receiving an enforcement action in the disclosure regime relative to the non-disclosure regime. This finding is consistent with the hypothesis that regulators are more concerned about the credibility of their actions in the disclosure regime when their efforts are observable.

4.2.2. *Impact of news circulation on the likelihood of receiving an enforcement action*

In this section, we present analyses to more closely tie regulators' incentives to the disclosure channel. In particular, we use newspaper circulation in a county as a measure of the likelihood of disclosure. Newspaper circulation is defined as the number of newspaper copies scaled by the population of the county (Gentzkow et al., 2011). Banks' stakeholders are more likely to learn about enforcement actions in counties with greater news circulation. Therefore, if regulators are more concerned about their reputation in the disclosure regime, this reputation-effect would be the strongest in counties with greater news circulation. Consequently, we expect regulators to issue more enforcement actions in counties with higher news circulation, as well as to rely more on publicly observable signals in high-news-circulation counties relative to low-news-circulation counties. To test this hypothesis, we estimate variations of the following Cox hazard model:

$$\begin{aligned}
 h(t_{ij}) = h_0(t) \exp(\beta_0 \text{Size}_{ij} + \beta_1 \text{Capital Ratio}_{ij} + \beta_2 \text{Asset Quality}_{ij} \\
 + \beta_3 \text{Profitability}_{ij} + \beta_4 \text{Liquidity Ratio}_{ij} + \beta_5 \Delta \text{Capital Ratio}_{ij} \\
 + \beta_6 \Delta \text{Liquidity Ratio}_{ij} + \beta_7 \Delta \text{Loans}_{ij} + \beta_8 \text{News Circulation}_i \\
 + \text{Year Indicators}),
 \end{aligned} \tag{2}$$

where *News Circulation* is an indicator variable that equals to one for counties in the highest tercile of newspaper circulation and zero otherwise. The remaining variables are defined above.

We present our findings from this analysis in [Panel B of Table 3](#). Columns (1) and (2) indicate that banks in counties with high news circulation are 16% more likely to receive an enforcement action compared to counties with low news circulation.²³ In columns (3)–(6), we interact *News Circulation* with bank-specific characteristics and find that non-performing assets and liquidity ratio provide statistically significant incremental predictive power in predicting enforcement actions in counties with high news circulation.²⁴ Overall, the results in this section provide further evidence of the link between the disclosure channel and regulators’ changing incentives in the disclosure regime.

4.2.3. Differing incentives of federal and state regulators

Federal bank regulators issue enforcement actions in conjunction with the state regulator. For instance, cease-and-desist orders issued by the FDIC are typically signed by both the FDIC as well as the state banking regulator. [Agarwal et al. \(2014\)](#) find that state banking regulators are driven by a different set of incentives and tend to be more lenient than federal regulators. State regulators are more concerned about the local economy and are reluctant to discipline a problem bank if it could result in a loss of local jobs and have a negative impact on the state’s or county’s economy. State regulators also tend to be more resource constrained. Federal regulators, however, are more concerned about systemic risk and country-wide financial stability and have access to more resources. [Agarwal et al. \(2014\)](#) find significant variation in the level of strictness across state banking regulators. They estimate a gap in regulatory ratings given to the same bank by state and federal regulators to create a measure of regulatory strictness. We use this measure to assess whether changes in the issuance of EDOs in the disclosure regime are related to regulatory strictness. We

²³Calculation: $(e^{0.15} - 1) * 100 = 16\%$.

²⁴In untabulated robustness tests, we also include county-level control variables for the business cycle measured as the rate of employment and the growth rate of employment (the only macroeconomic indicators available at the quarterly and county level for our whole sample period). We find that when the economy is doing well (the local rate of employment is high), the likelihood of getting an EDO increases, suggesting forbearance in bad times or precautionary policy in good times.

estimate the following variations of the Cox hazard model:

$$\begin{aligned}
h(t_{ij}) = h_0(t) \exp(\beta_0 \text{Size}_{ij} + \beta_1 \text{Capital Ratio}_{ij} + \beta_2 \text{Asset Quality}_{ij} + \beta_3 \text{Profitability}_{ij} \\
+ \beta_4 \text{Liquidity Ratio}_{ij} + \beta_5 \Delta \text{Capital Ratio}_{ij} + \beta_6 \Delta \text{Liquidity Ratio}_{ij} + \beta_7 \Delta \text{Loans}_{ij} \\
+ \beta_8 \text{Disclosure Regime}_j + \beta_9 \text{Strict} + \text{Year Indicators}),
\end{aligned}
\tag{3}$$

where *Strict* is an indicator variable that equals to one for states in the top tercile of strict regulators and zero otherwise. The remaining variables are defined above. Since in this analysis we compare state banking regulators, we restrict our sample to state-chartered banks.

We present our findings from this analysis in [Panel C of Table 3](#). Columns (1) and (2) show that the coefficient on *Disclosure* \times *Strict* is negative and statistically significant suggesting that, relative to the non-disclosure regime, in the disclosure regime, banks in states with lenient regulators are more likely to receive enforcement actions. In terms of the magnitude, the coefficient estimates of -0.471 and -0.518 indicate that banks located in the states with strict banking regulators are 38% to 40% *less likely* to receive an enforcement action compared to states with lenient regulators.²⁵ In columns (3)–(6), we interact *Disclosure* \times *Strict* with bank-specific characteristics and include all intermediate interactions. While our previous results continue to hold (in the disclosure regime banks with low capital ratios, high non-performing assets and low profitability are more likely to receive enforcement actions) we do not find significant coefficients for the interaction of *Disclosure* \times *Strict* with bank characteristics. These results indicate that, although federal regulators do not distinguish between banks in states with strict and lenient regulators based on bank characteristics, they are more likely to issue enforcement actions in states with lenient regulators in the disclosure regime, relative to the non-disclosure regime. These

²⁵Calculation: $(e^{-0.471} - 1) * 100 = -38\%$, and $(e^{-0.518} - 1) * 100 = -40\%$.

results are consistent with regulators being more concerned about the public perception of their actions in the disclosure regime.

In the next section, we assess the impact of disclosure of EDOs on depositors, who learn about EDOs through their public disclosure. We also show that disclosure has a large economic impact on banks that receive an EDO in the disclosure regime.

4.3. 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 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:

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

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). Bank and year-quarter fixed effects are α_i and δ_t , 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-FIRREA period.

Table 4, Panel A presents our findings and shows that total deposits decrease by 6.3% following the change in the disclosure regime. This drop corresponds to a 5.7% 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 by 3.7% for banks receiving an EDO in the disclosure regime. 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 3.0% 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:

$$\begin{aligned}
 Y_{it} = & \beta_0 + \beta_1 Treatment_i + \beta_2 Post\ EDO_{i\tau} + \beta_3 Post\ EDO_{i\tau} \times Treatment_i \\
 & + \gamma X_{i\tau-1} + \alpha_i + \delta_t + \epsilon_{it},
 \end{aligned}
 \tag{5}$$

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 that 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 4, Panel B](#), which shows that uninsured deposits decrease by 24.9% for banks that receive an EDO in the post-disclosure period. 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 4, Panel C](#) results suggest that on average banks affected by enforcement actions in the disclosure period 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 covering all banks that receive EDOs in our sample across all US states and identify whether the news of an EDO is covered by the media. [Figure 11](#) 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 5](#). 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%, respectively. Although insured depositors are less at risk relative to the uninsured, they also seem to withdraw deposits after a bank receives an EDO. One possible reason is that, following an EDO, the FDIC could withdraw deposit insurance if a bank does not sufficiently address concerns raised by the regulator and continues to engage in unsafe and unsound practices. 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.

4.4. *Impact of disclosure on other bank outcomes*

In this section, we investigate whether the change in the regulators' incentives and resulting increased oversight affect 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:

$$\begin{aligned}
 Y_{it} = & \beta_0 + \beta_1 Post\ EDO_{i\tau} + \beta_2 Disclosure\ Regime_t + \beta_3 Post\ EDO_{i\tau} \times Disclosure\ Regime_t \\
 & + \gamma X_{i\tau-1} + \alpha_i + \delta_t + \epsilon_{it},
 \end{aligned}
 \tag{6}$$

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 of 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 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 based 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 based on observable characteristics. 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. We use two sets of matches for these analyses. First, we match banks within a county by asset size to construct a sample of banks similar in size and geographic proximity using one-to-one matching. Second, we use a two-stage matching approach by creating a sample of treatment and control banks that satisfy covariate balance by using entropy balance matching on the first two moments and data from the four quarters

prior to the receipt of an EDO for our treatment banks. We also do this procedure separately for banks in the pre- and post-disclosure regime. In the second step, we use propensity score matching (nearest neighbor, one-to-one matching with replacement) to further restrict our sample to banks that not only have comparable observable characteristics but also similar likelihoods of getting an enforcement action.²⁶ 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 (*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 6](#). We estimate the following equation using a triple difference research design (DDD):

$$\begin{aligned}
Y_{it} = & \theta_0 + \theta_1 Treatment_i + \theta_2 Post\ EDO_{i\tau} + \theta_3 Treatment_i \times Post\ EDO_{i\tau} \\
& + \theta_4 Treatment_i \times Disclosure\ Regime_t + \theta_5 Post\ EDO_{i\tau} \times Disclosure\ Regime_t \\
& + \theta_6 Treatment_i \times Post\ EDO_{i\tau} \times Disclosure\ Regime_t + \gamma X_{i\tau-1} + \alpha_i + \delta_t + \epsilon_{it},
\end{aligned} \tag{7}$$

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 6](#), the main effects are subsumed by the fixed effects structure.

We present our main findings for the full DDD model in [Table 7](#). Our first matched

²⁶In untabulated analyses, we also use coarsened exact matching (CEM), propensity score matching with a caliper and two-stage matching with CEM and propensity score matching to construct alternative matched samples. Our main findings remain robust to various matching technique choices.

sample is constructed based on banks' geographic location and size.²⁷ Panel A shows that, on average, banks that receive EDOs in the disclosure regime experience a significant decrease in deposits of 6.7% relative to control banks that did not receive enforcement actions. 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 0.7% or 22% of the sample standard deviation.

Next, we present our results using a two-step matching procedure using entropy balancing, a multivariate reweighing method that allows users to reweigh a dataset in such a way that the covariate distribution in the reweighed data satisfies a specified set of moment conditions (Hainmueller, 2010). We construct our subsample to achieve covariate balance between treatment and control banks in the pre- and post-disclosure periods using size (natural logarithm of total assets), profitability (ROA), capital ratio and liquidity ratio as observable characteristics and requiring covariate balance to be achieved on the first two moments. Panel B shows that we indeed achieve covariate balance and the first two moments of treatment and control samples are not significantly different from each other. After this first data processing step, we use propensity score matching to construct our final matched sample for the DDD test. Panel C of Table 7 shows the results of our triple difference estimation using the matched sample. Similar to our previous findings, banks that receive EDOs improve their capital ratios relative to control banks by 0.7% in the post-disclosure regime. Even though we find similar magnitudes and signs for total deposits, the result is not statistically significant. We also find a relative 0.7% improvement in non-performing loans, which is statistically significant. Overall, we find that relative to other similar banks not subject to

²⁷Figure 10 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.

an enforcement action, EDO banks significantly improve their capital ratios and the quality of their asset portfolio after the change in the disclosure regime.

5. Additional analyses and robustness

5.1. Impact of disclosure of enforcement actions on bank failure

In this section, we assess the impact of the disclosure of enforcement actions on bank failure by estimating hazard models of failure time. Our main specification is as follows:

$$h(t_{ij}) = h_0(t) \exp(\beta_1 \text{Disclosure Regime}_j + \beta_2 \text{Treatment}_i + \beta_3 \text{Treatment}_i \times \text{Disclosure Regime}_j + \beta_k X_{ijk} + \text{Year Indicators}), \quad (8)$$

where *Treatment* is an indicator variable that takes the value of 1 for banks that received an enforcement action and 0 otherwise. *Disclosure Regime* is an indicator variable that equals 1 in the period after the change in regulation and 0 otherwise. 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). We estimate semi-parametric (Cox hazard) and parametric (Weibull) variations of Equation 8.²⁸

Table 8 presents the results from the estimation of Equation 8. In columns (1) and (2) the interaction of *Treatment* with the disclosure regime indicator shows that failing banks were more likely to receive enforcement actions in the disclosure regime. In columns (3) and (4), we introduce several control variables and find similar results. We also find that the magnitude of coefficients is similar for the semi-parametric and parametric specifications, suggesting the Weibull distribution is a reasonable assumption for the functional form of $h_0(t)$. The results indicate that banks that received enforcement actions were 43% to 49%

²⁸The Cox hazard model is generalizable for any baseline hazard function $h_0(t)$. The Weibull model assumes a parametric baseline hazard of the form $h_0(t) = pt^{p-1} \exp(\beta_0)$, where *p* is the shape parameter and $\exp(\beta_0)$ is the scale parameter.

more likely to fail in the disclosure regime. We offer two interpretations of the results in columns (1)–(4). First, regulators may have been concerned about the public perception of their actions and therefore issued enforcement actions to bad banks, even in cases where the bank would have failed anyway. Second, the disclosure of enforcement actions may in fact lead to bank failure. One reason for bank failure is depositors withdrawing their funds from the bank. In [subsection 4.3](#), we show that depositors react to information about enforcement actions. Therefore, the disclosure of EDOs could have accelerated bank failure or led to the failure of a bank which would otherwise have recovered in the non-disclosure regime.

To assess whether the disclosure of EDOs accelerates bank failure, we estimate accelerated failure-time models of the form:

$$\log(t_j) = \beta_k X_j + \log(\tau_j), \tag{9}$$

where τ_j is assumed to have a Weibull distribution. Coefficient estimates β_k will allow us to assess the impact of covariates on logged survival times.

Results from the estimation of [Equation 9](#) are presented in column (5) of [Table 8](#). The coefficient of -1.201 on *Treatment* \times *Disclosure Regime* converts to a time ratio of 0.30 ($e^{-1.201}$). The exponentiated coefficient of 0.30 implies that conditional on failure, banks that received an EDO in the disclosure regime failed 70% ($1 - 0.30$) faster than banks that received an EDO in the non-disclosure regime. The signs of the coefficients indicate how the covariates affect logged survival times. For instance, a positive coefficient on *Capital Ratio* indicates that banks with higher capital ratios have higher logged survival times.

Overall, the results in this section indicate that failing banks were more likely to receive enforcement actions in the disclosure regime. Furthermore, we find that conditional on failure, the disclosure of EDOs accelerates bank failure.

5.2. Economic trends

In this section, we assess the impact of changing economic trends on our results related to changes in regulators' incentives. We expand the post-FIRREA period to 2007 (prior to the Great Recession) and re-estimate models (2)–(5) of [Table 3, Panel A](#) for consecutive sixteen-quarter windows in the pre- and post-FIRREA periods. Specifically, we conduct a rolling window analysis where for each sixteen-quarter window in the pre-disclosure period, we select all possible consecutive sixteen-quarter windows in the disclosure period. We then re-estimate the Cox hazard models for all possible combinations of pre- and post-FIRREA periods.²⁹

The results of this analysis are presented in [Figure 12](#). Plots of coefficients of the *Disclosure Regime* indicator are presented in [Panel A](#) of the figure. The coefficient values are consistently positive over the entire sample period suggesting that, controlling for covariates, regulators were more likely to issue enforcement actions in the disclosure regime, relative to the non-disclosure regime. [Panel B](#), [Panel C](#) and [Panel D](#) plot the coefficients of *Capital Ratio* \times *Disclosure Regime*, *Non-performing Assets* \times *Disclosure Regime* and *Return On Assets* \times *Disclosure Regime*. Although the plots show a trend over time, the figures are consistent with our findings that relative to the non-disclosure regime, in the disclosure regime regulators were more likely to issue enforcement actions against banks that have lower capital ratios, higher non-performing assets and lower profitability. Overall, these results suggest that our findings are consistent over a large number of years, and are not an artifact of changing economic conditions.

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.

²⁹In this analysis, we drop year indicators from the model because our objective is to assess the variation in coefficients over time.

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 evidence on 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 regulators and depositors, taxpayers and other stakeholders.

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 capital ratios and asset quality. We also find that, in the disclosure regime, enforcement actions are a strong predictor of bank failure but that disclosure accelerates bank failure. 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]

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[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.

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[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.

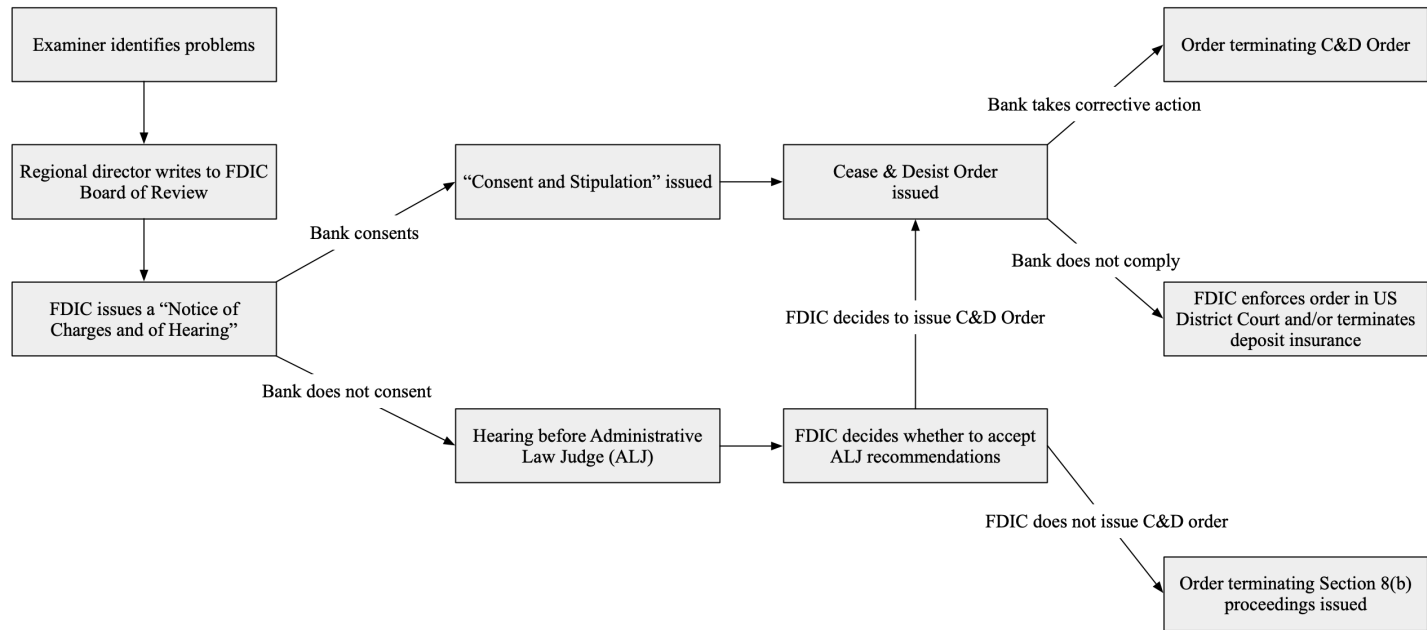
[11] Federal Deposit Insurance Corporation. Division of Research and Statistics. *History of the Eighties: Lessons for the Future*. (Washington, District of Columbia: Federal Deposit Insurance Corporation, 1997), 101-102.

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 Circulation | Indicator variable which takes the value of 1 if a bank is located in a county in the highest tercile of news circulation and 0 otherwise. Circulation is computed as the number of copies divided by total population at the county level. | Gentzkow et al. (2011) | |
| 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) |

Appendix C. FDIC's process for issuing Cease and Desist orders



Source: "FDIC Enforcement Decisions" Volume I published by Prentice Hall (1988), authors' reading of enforcement actions and interviews.

Appendix D. Excerpts from comment letters in response to the FDIC's proposals to disclose enforcement actions

First National Bank of Omaha, Omaha, Nebraska, January 16, 1986. The First National Bank of Omaha wishes to express deep concern relative to the disclosure requirements published in the Federal Register on October 30, 1985 at page 45372. In our opinion, the effect of these disclosures could cause gross misunderstanding on the part of the public, and substantial harm to otherwise viable financial institutions through disclosures misconstrued by the public and misinterpreted by the media. [In relation to administrative actions] Administrative Actions: The public disclosure of highly technical and often misunderstood communications and understanding with regulators would have disastrous effects in the hands of the media and rumor mongers. This disclosure could have exactly the opposite effect to that intended by the regulatory authority. It could cause the premature and unwarranted collapse of an otherwise sound and curable bank situation. This could cause a needless burden to be placed upon the resources of the F.D.I.C.

Richardson County Bank & Trust Co., January 22, 1986. No matter how good a bank's record may be, and we are proud of our's, we find this does not set us aloof from the rumors, and we have fielded some nasty ones. The theory, it appears, is that disclosure will allay rumors. Please know this is NOT the case. In our area we find that those who take the time to study the present disclosures are the curious, talkative folks; and that further, the time between their repeating a partial fact and the spreading of a juicy rumor can be very, very short. One most obvious result of this additional disclosure is self-evident and that is in a small city such as ours, our bank would lose all of our major customers. Our deposit base would be depleted and our ability to continue to make meaningful agricultural loans would be hampered and in jeopardy.

Independent Bankers Association of America, February 27, 1986. Independent bankers want all the banking regulators to take a more active role in supervision by increasing onsite examinations, developing better surveillance systems, and taking more timely enforcement actions. Closer supervision of the industry is definitely needed, but the answer to this is NOT additional disclosure. Community bankers have not seen any evidence that the general public would either use or understand this information. Our overall conclusion is that the IBAA cannot support this costly and burdensome disclosure proposal.

First State Bank, Hitchcock, Texas, January 15, 1985. Our Board of Directors is officially on record as opposing the proposed rule, and we request that the Office of the Comptroller of the Currency not adopt this rule in any form, and that the other regulators, including the Federal Deposit Insurance Corporation, attempt to correct the abuses that have occurred within the system through the coordination of regulatory enforcements and disclosures that currently exist. . . . We strongly oppose attempts to use "marketplace discipline" as a panacea for improvements in prudent banking activities. We encourage better use of statements of condition and call reports explaining capital ratios, profits and losses, non-performing loans, and stronger enforcement actions against officers, insiders, and directors who violate their positions of trust.

West Bank & Trust, West, Texas, March 22, 1985. The above captioned policy

statement is purported to furnish the F.D.I.C. with an additional tool for increasing market discipline by subjecting banks and their managements to greater public scrutiny. This would be a wonderful utopian policy if based on factual criteria established equally for all size banks and presented in financial form to the public. My concern for this utopia is who is to be "judge and jury." The banking community surely supports immediate remedial action for all transgressions by any banks management that is evidenced by facts supportable to bring legal charges. However, if F.D.I.C., through its own determination, issues public statement based upon opinion, innuendo, bias, prejudice, personality conflict, or judgemental values, then a resounding "NO" must be cast. Your proposed regulation breaks the moral code concerning, confidentiality of a corporations internal records and corporate actions. Why not be the regulator and allow "the Law" to act as "the judge and jury." Has anyone initiated formal duration analysis to determine the repercussion of the reverse action by a bank or bank's management over public statements issued by triers which through due process have been found to be inaccurate and/or erroneous? If the same bureaucratic efficiencies are historically repeated, it is with fear that I would face the proposed policy enforcement by the F.D.I.C. "Increased market discipline" would undermine the public's confidence in "market disruption."

Thayer County Bank, Hebron, Nebraska, January 17, 1986. I would like to express my concern over the impending disclosure proposals which the FDIC is considering. In general, I feel that all of the proposed areas of disclosure are unnecessary and will do nothing to benefit our banking system, especially in rural America. First, in regard to the disclosure of all administrative actions [enforcement actions], the public reaction to notices and administrative actions is not being considered at all. In a small rural community such as Hebron, Nebraska, this would create an explosion of chatter and defamation in the coffee shops and beauty shops. The result, a panic and a massive move (whether it be 10% or 75%) of our deposits approximately one block down the street to First Federal Savings and Loan. The public would perceive that institution to be totally sound since there is nothing in the paper about them being "crooks". Yet in reality, as you know, the capital structure of our bank and most banks, is in much better condition than the S & L's.

Portland State Bank, Portland, Texas, January 30, 1986. It has come to my attention that the Federal Deposit Insurance Corporation (FDIC) is considering regulations similar to the proposed regulations of the Office of the Comptroller of the Currency (OCC) on financial disclosure. I would like to take this opportunity to express my concern with these proposed regulations. Three reasons for requiring full financial disclosure, as stated in the proposal by the OCC, are to promote greater public confidence in the banking system, to encourage banks to act more prudently and to further protect the FDIC insurance fund. Instead of having a positive effect on the banking system, I feel that the effect would be negative. The required reports would encourage rumors due to misinterpreted information, which would be provided by the banks. Furthermore, disclosure of administrative [enforcement] actions taken by regulatory agencies in regard to problem banks could cause a major withdrawal of deposits and thereby, actually be a detriment to the insurance fund. Also, it is my opinion that the regulatory agencies already have sufficient means to insure that management operates the bank in a prudent manner and additional regulations are not needed.

Nebraska Bankers Association, Lincoln, Nebraska, January 14, 1986. To pub-

licly disclose administrative [enforcement] actions would be contrary to the bank's best interests. Such actions are "tools" for bank regulators and would likely be overplayed in the news media and misunderstood by the public.

Commercial State Bank, Wausa, Nebraska, January 14, 1986. Any administrative [enforcement] action that is publicly disclosed would not be understood by the general public and would have far more reaching damaging effect and again could cause a run on the bank.

Landmands National Bank, Kimbalton, Iowa, February 12, 1986. In our opinion, the effect of these disclosures could cause gross misunderstanding on the part of the public, and substantial harm to otherwise viable financial institutions through disclosures misconstrued by the public and misinterpreted by the media. . . . The public disclosure of highly technical and often misunderstood communications and understanding with regulators would have disastrous effects in the hands of the media and rumor mongers. This disclosure could have exactly the opposite effect to that intended by the regulatory authority. It could cause the premature and unwarranted collapse of an otherwise sound and curable bank situation. This could cause a needless burden to be placed upon the resources of the F.D.I.C.

Brunswick State Bank, Brunswick, Nebraska, January 20, 1986. You must really consider the ramifications of disclosure of certain administrative [enforcement] actions. Think of such a news item and how you would interpret it if you were not knowledgeable about banking regulations. Do you think that the man on the street can correctly understand what is being done? The reports that are being proposed appear to be nothing more than [sic.] more make-work projects to insure full employment in Washington. Most of them would have to be prepared through [sic.] the use of outside professionals and at a great cost which most banks do not need already. This proposal is completely out of touch with reality. I think that the various regulatory authorities already have enough power to correct undesirable actions within a bank.

Commercial Bank of Palm Beach County, Florida, October 5, 1987. However, the Bank strongly opposes the disclosure of administrative enforcement action at any time until the regulator obtains a cease and desist order. The reasons for the opposition are as follows: First, typically when such actions are in process, the subject bank is in an unstable condition and, therefore, most vulnerable to adverse public reaction. Second, the opportunity for public misunderstanding and misinterpretation of an administrative enforcement action is great. Third, the regulator's discretion in requiring release of the information would put the regulator in an unfairly advantageous negotiating position in settling disputed issues with a bank.

National Council of Savings Institutions, Washington DC, August 24, 1987. Although the proposal to require disclosure of selected FDIC enforcement actions is less onerous than the previous proposal to disclose all such actions, it remains subject to our observation that such a requirement is likely to make consent decrees more difficult to obtain. More importantly, enforcement actions may be publicly perceived as evidence of weakness in a bank's condition, with the result seen in the savings and loan industry that an institution thought to be struggling must pay more for deposits, increasing its cost of money, and eventually, the cost of funds of its competitors.

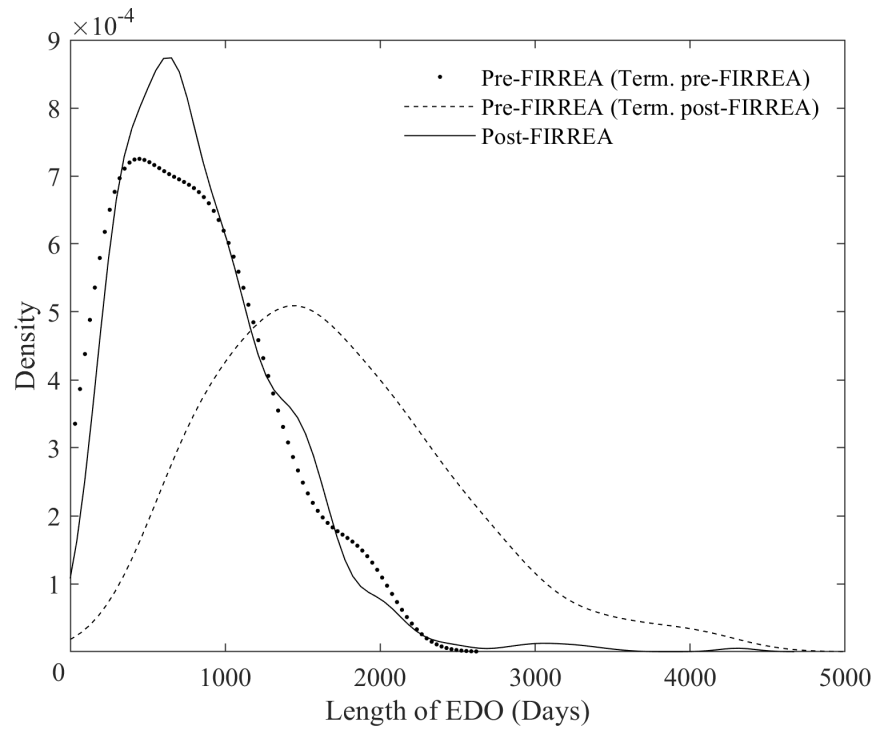


Figure 1: Distribution of EDO length

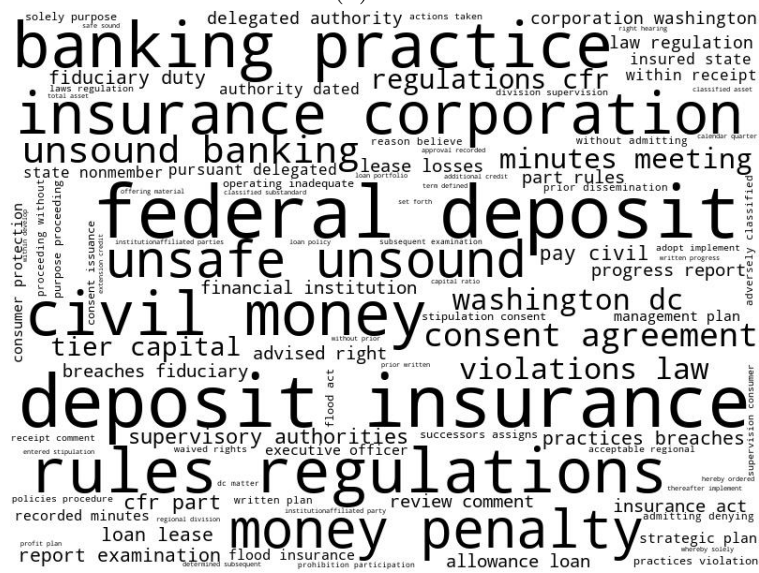
This figure shows the kernel density function for the length of an EDO in the pre- and post-disclosure regimes. Length of an EDO is defined as the number of days from the issuance of an EDO to its termination. The dotted line represents EDOs that were issued and terminated in the pre-disclosure regime. The dashed line represents EDOs that were issued in the pre-disclosure regime but terminated post-disclosure. The solid line represents EDOs issued and terminated in the disclosure regime.



(a) 1990



(b) 2000



(c) 2008



(d) 2017

Figure 2: Word clouds reflecting word frequency for EDOs received by banks in 1990 (a), 2000 (b), 2008 (c) and 2017 (d).

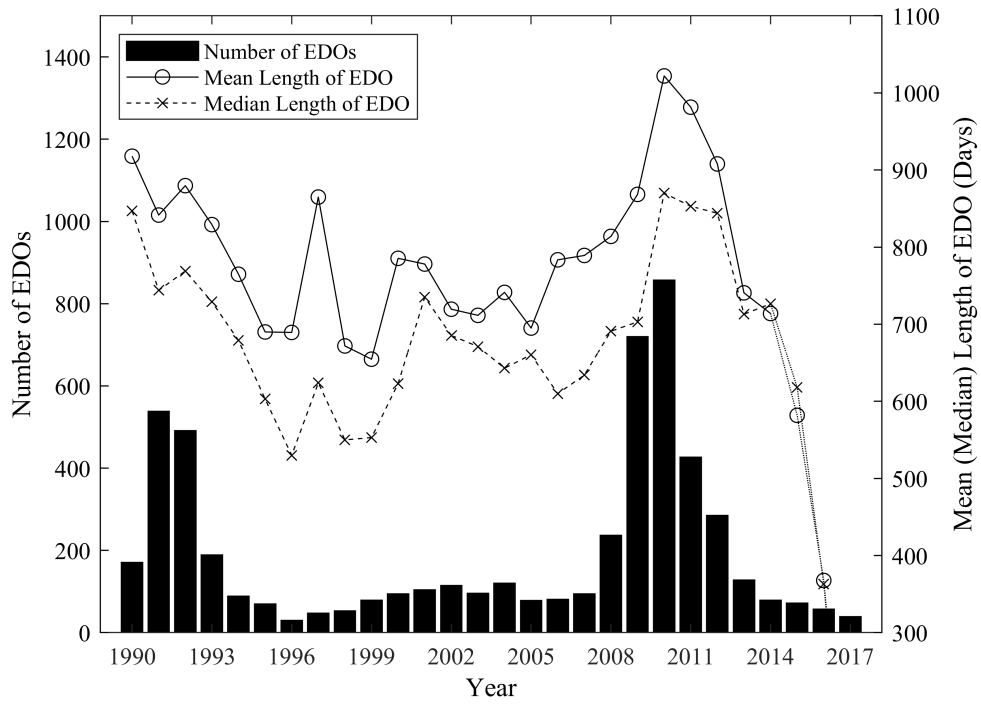


Figure 3: Number and the average length of enforcement actions (EDO)

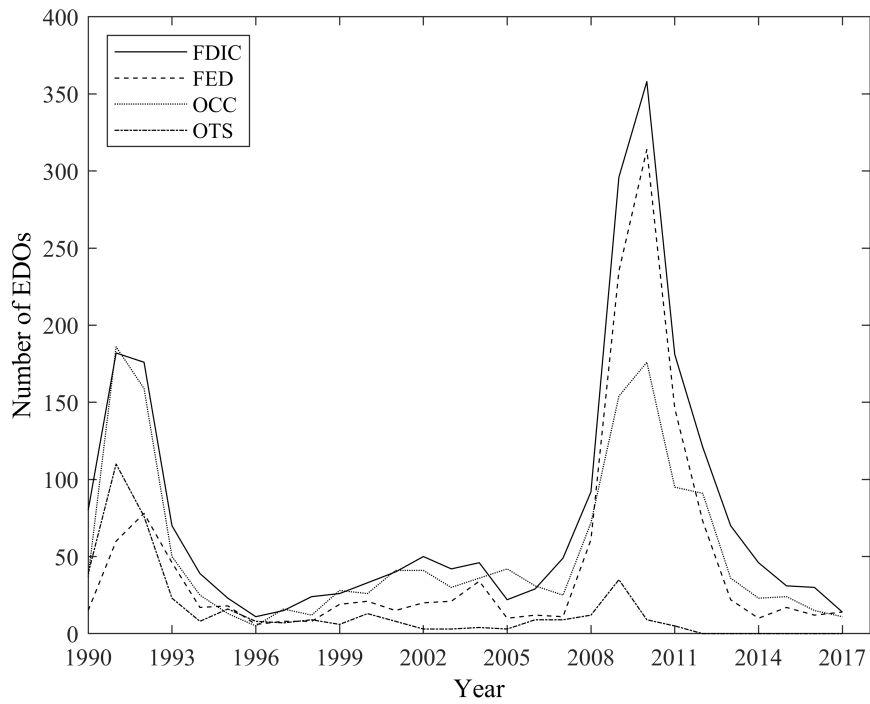


Figure 4: Number of enforcement actions by the primary regulator

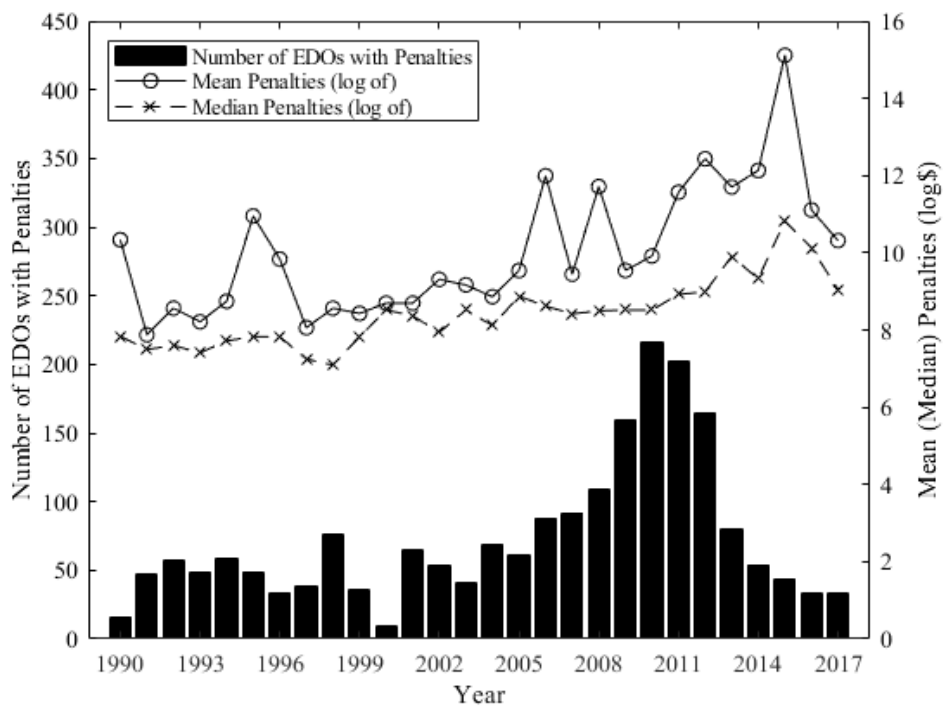


Figure 5: Number of EDOs with penalties and mean (median) penalties by year

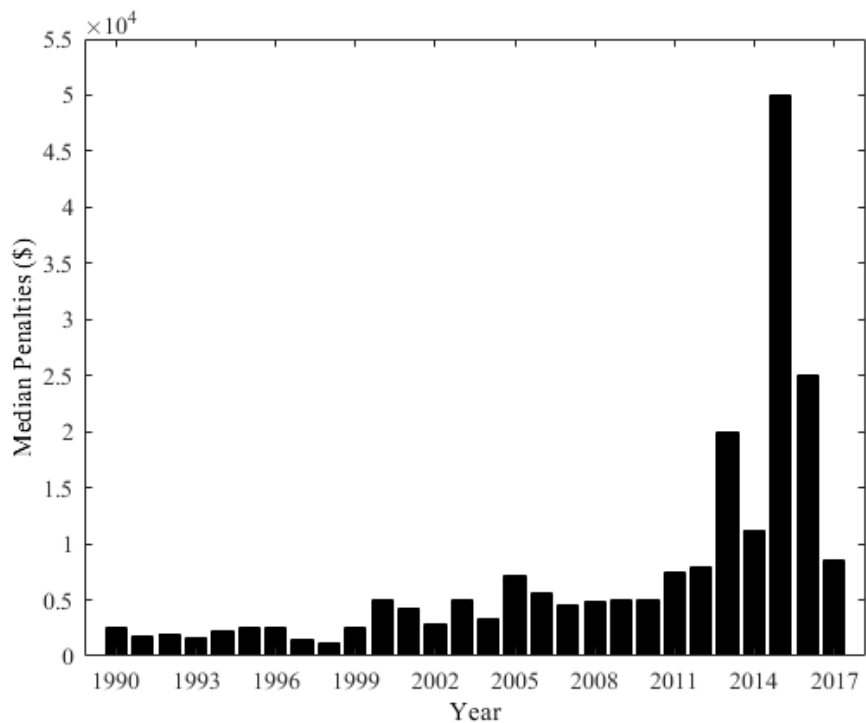
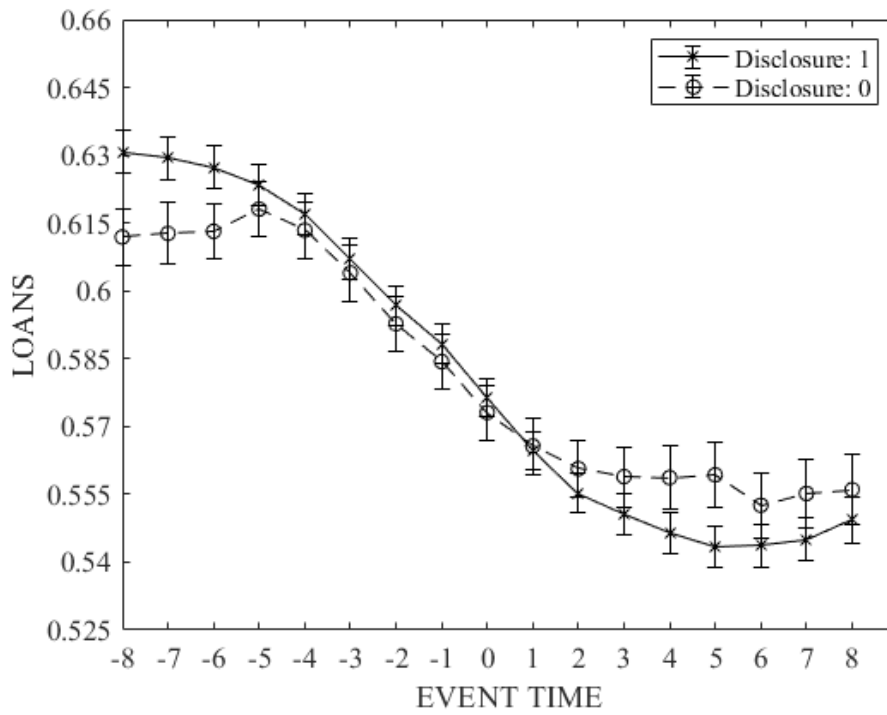
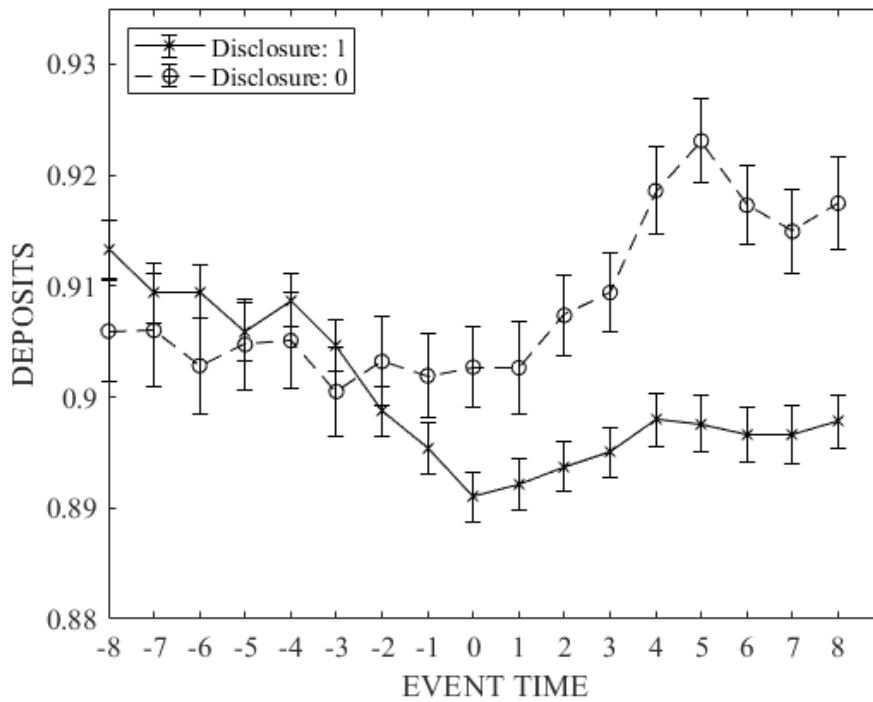


Figure 6: Median values of penalties by year (in \$)



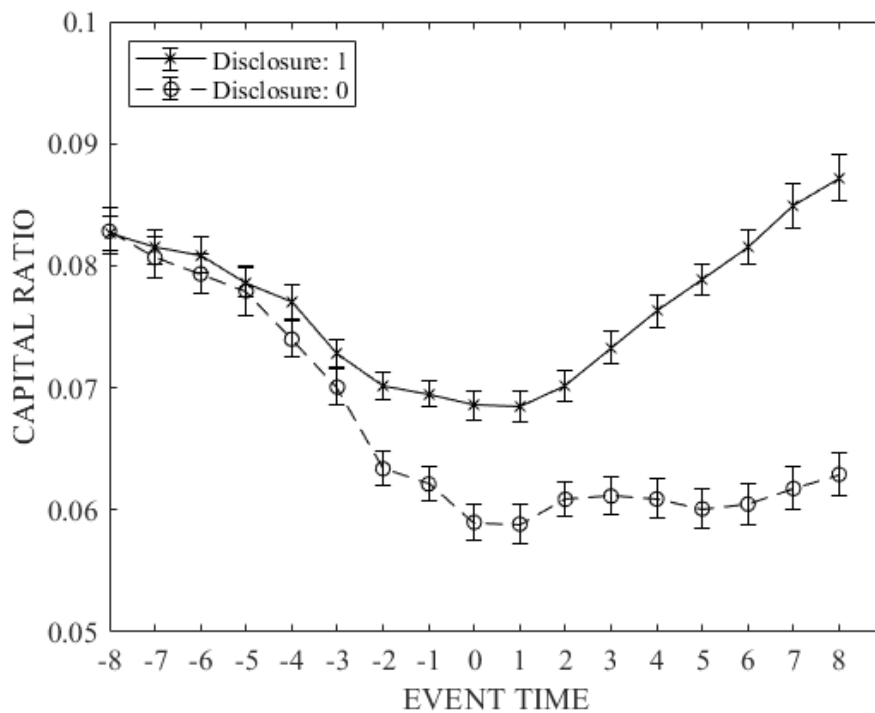
Panel A



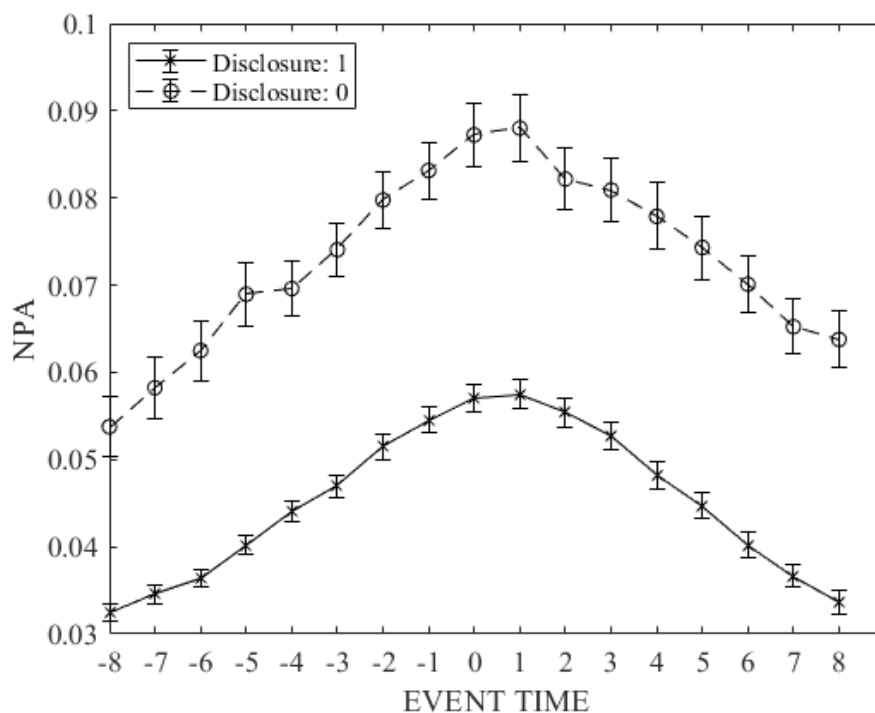
Panel B

Figure 7: 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 8: 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).

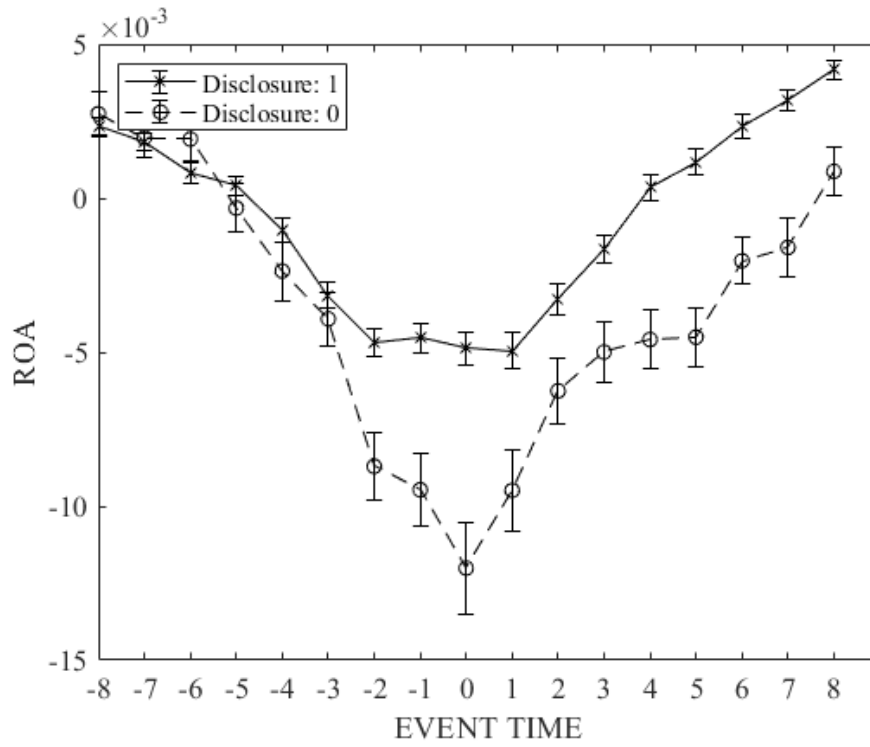


Figure 9: Univariate impact of the change in the disclosure regime on ROA.

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

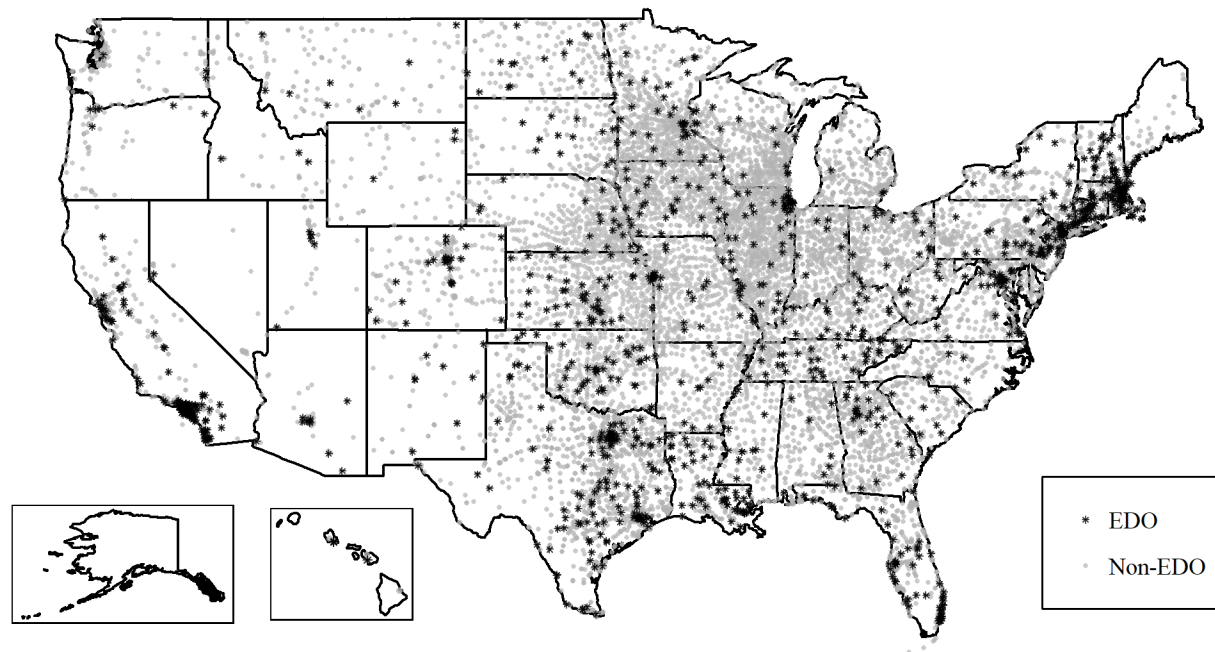


Figure 10: Geographic distribution of EDO and non-EDO banks in the sample

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 1983 to 1997.

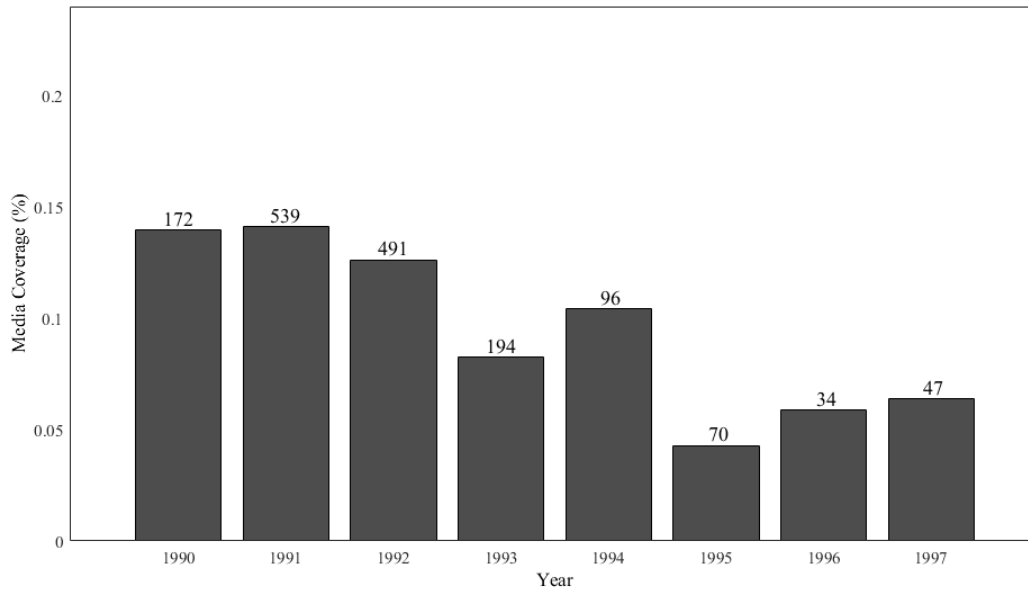
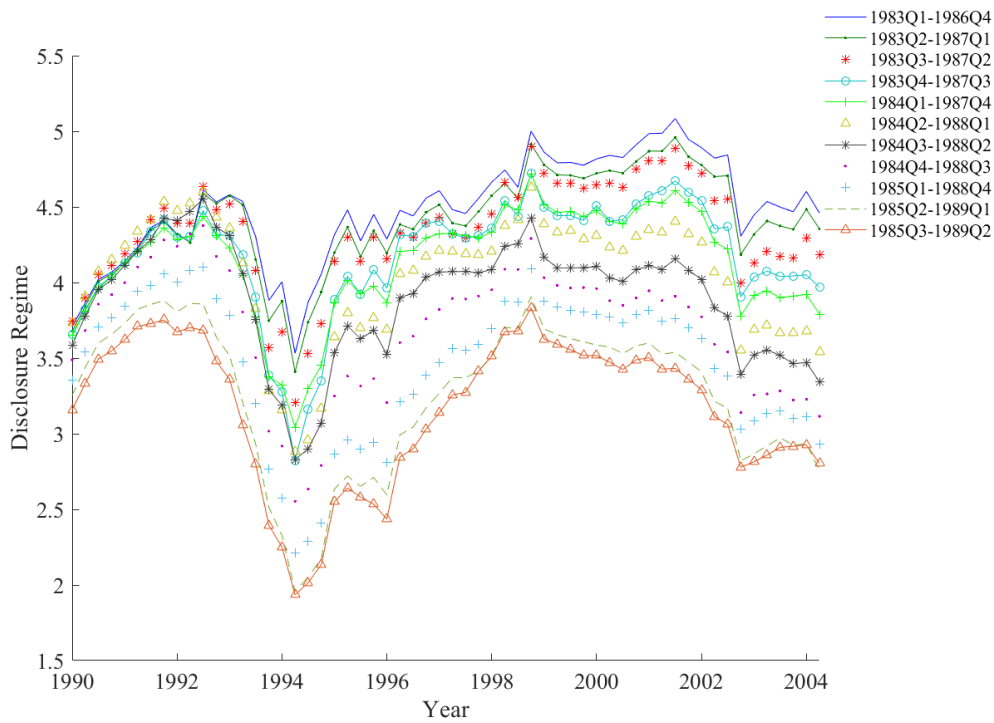
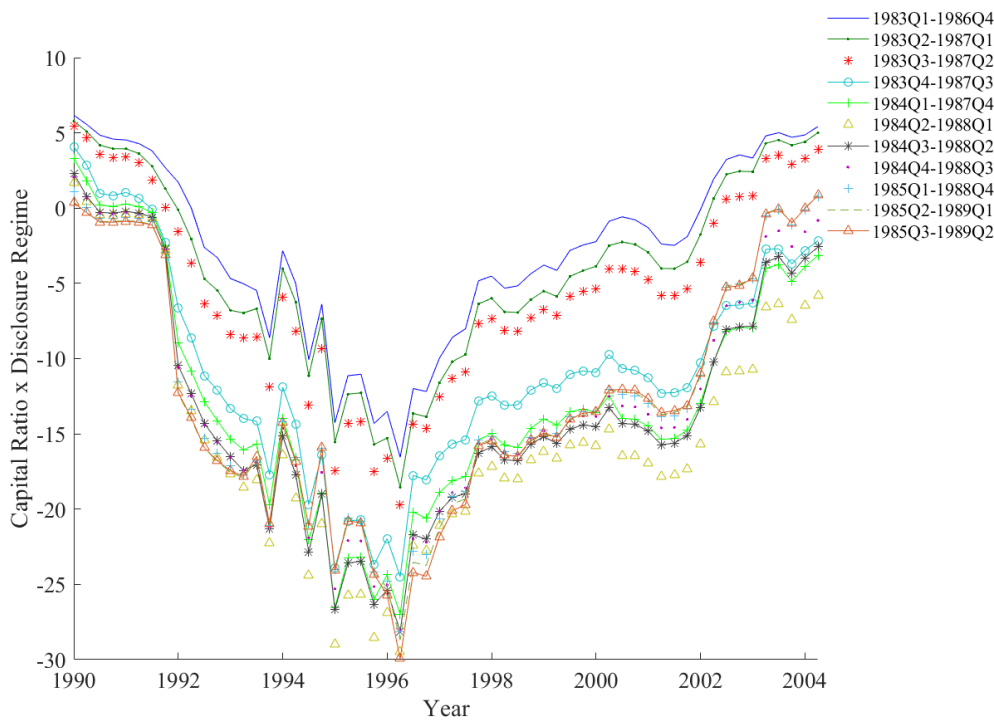


Figure 11: News coverage of EDOs

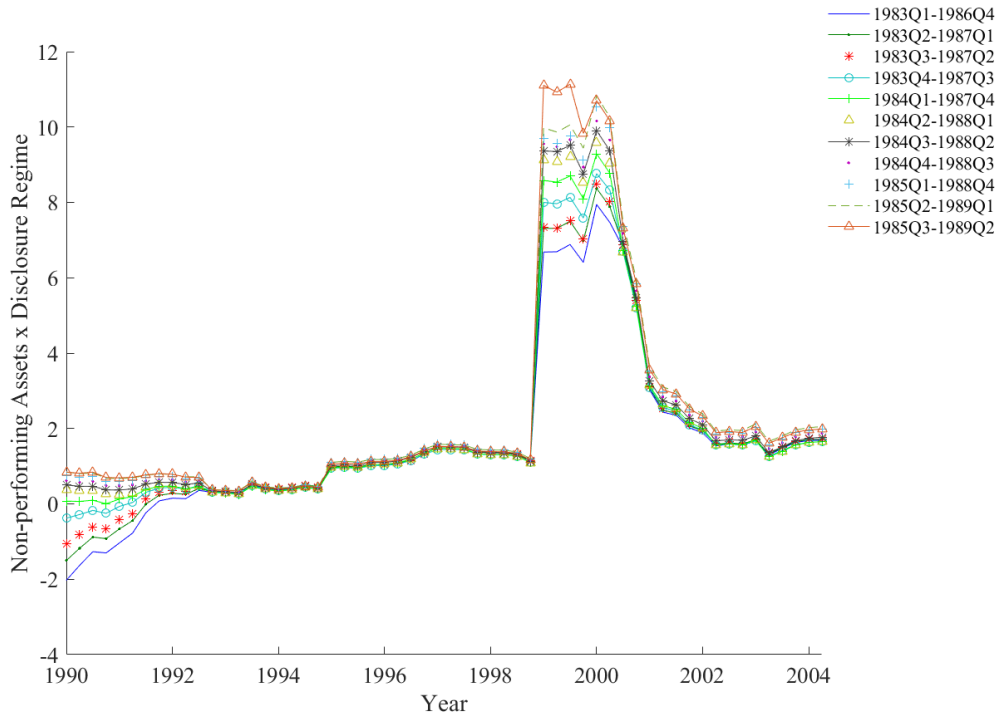
This figure shows the news coverage of EDOs for banks that received an EDO during the sample period of 1990 to 1997. The bars refer to the percentage of EDOs that received news coverage in a given year. The numbers above the bars represent the total number of EDOs received by banks in that year.



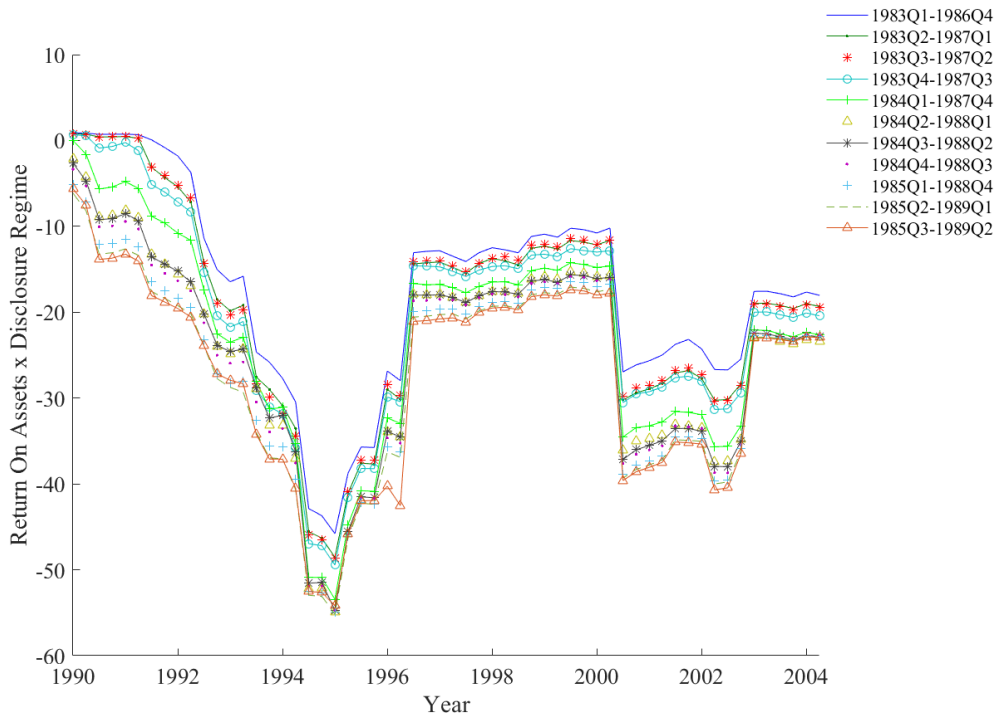
Panel A



Panel B



Panel C



Panel D

Figure 12: Time trend of coefficients

This figure shows the time trend of coefficients of *Disclosure Regime* (Panel A), *Capital Ratio* \times *Disclosure Regime* (Panel B), *Non-performing Assets* \times *Disclosure Regime* (Panel C) and *Return On Assets* \times *Disclosure Regime* (Panel D) from the estimation of Equation 1 (excluding year indicators). The legend indicates pre-FIRREA quarters selected. Details of the estimation are described in subsection 5.2.

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 1983 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).

| Variable | EDO bank-quarters | | | Non-EDO bank-quarters | | | Difference | (t-statistic) |
|-----------------------------|-------------------|--------|-------|-----------------------|--------|-------|------------|---------------|
| | N | Mean | Sd | N | Mean | Sd | | |
| | (1) | | | (2) | | | (1) - (2) | |
| Total Deposits | 1,182 | 10.821 | 1.249 | 671,485 | 10.673 | 1.273 | 0.148*** | (4.073) |
| Loans to Total Assets Ratio | 1,182 | 0.593 | 0.126 | 672,213 | 0.520 | 0.149 | 0.073*** | (19.852) |
| Capital Ratio | 1,182 | 0.068 | 0.032 | 672,216 | 0.096 | 0.057 | -0.028*** | (-30.151) |
| Non-Performing Assets Ratio | 1,182 | 0.063 | 0.063 | 670,703 | 0.022 | 0.040 | 0.041*** | (22.491) |
| Size | 1,182 | 10.922 | 1.264 | 672,216 | 10.821 | 1.270 | 0.101*** | (2.736) |
| Return On Assets | 1,182 | -0.006 | 0.017 | 669,464 | 0.006 | 0.015 | -0.012*** | (-23.967) |
| Liquidity Ratio | 1,182 | 0.070 | 0.044 | 672,213 | 0.076 | 0.064 | -0.006*** | (-4.375) |
| Insured Deposits | 729 | 10.771 | 1.150 | 258,800 | 10.653 | 1.259 | 0.118*** | (2.776) |
| Uninsured Deposits | 728 | 9.441 | 1.585 | 257,520 | 9.253 | 1.584 | 0.188*** | (3.197) |

Table 3: Likelihood of receiving an enforcement action

This table presents the coefficients from estimating Cox proportional hazard models of the regulators' decision to issue an enforcement action from the period of 1983 to 1997. *Disclosure Regime* takes the value of 1 for the quarters after the introduction of FIRREA in 1989Q3 and 0 otherwise. *News Circulation* is an indicator variable that equals to 1 for banks located in counties in the highest tercile of news circulation and 0 otherwise. *Strict* is an indicator variable for banks in states with the highest tercile of strict regulators (based on the measure developed by Agarwal et al. (2014)). 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).

Panel A: Impact of disclosure on the likelihood of receiving an enforcement action

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|----------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|------------------------|
| Disclosure Regime | 1.860*** (18.143) | 1.386*** (3.874) | 1.719*** (4.712) | 0.703* (1.823) | 0.962*** (2.579) | 1.289*** (3.393) | 0.408 (0.844) |
| Size | | -0.021 (-0.876) | -0.019 (-0.800) | -0.025 (-1.017) | -0.024 (-0.986) | -0.020 (-0.817) | -0.026 (-1.045) |
| Capital Ratio | | -16.653*** (-9.108) | -10.668*** (-4.567) | -16.397*** (-9.094) | -16.328*** (-9.012) | -16.635*** (-9.096) | -18.682*** (-5.797) |
| Non-Performing Assets | | 21.116*** (20.289) | 21.141*** (20.443) | 16.090*** (11.594) | 21.110*** (20.624) | 21.086*** (20.232) | 17.859*** (10.641) |
| Return On Assets | | -33.873*** (-10.631) | -34.412*** (-10.859) | -34.473*** (-10.825) | -18.987*** (-4.356) | -33.885*** (-10.632) | -22.613*** (-4.199) |
| Liquidity Ratio | | -1.644** (-2.516) | -1.636** (-2.495) | -1.814*** (-2.751) | -1.704*** (-2.590) | -2.439** (-2.215) | -2.472** (-2.301) |
| Change in Capital Ratio | | -0.408** (-2.338) | -0.461*** (-2.616) | -0.435** (-2.492) | -0.419** (-2.413) | -0.412** (-2.358) | -0.420** (-2.406) |
| Change in Liquidity Ratio | | 0.082 (1.220) | 0.081 (1.200) | 0.087 (1.275) | 0.082 (1.208) | 0.087 (1.287) | 0.089 (1.306) |
| Change in Loans | | -0.897*** (-3.619) | -0.891*** (-3.621) | -0.850*** (-3.491) | -0.862*** (-3.526) | -0.893*** (-3.605) | -0.841*** (-3.458) |
| log(Distance) | | 0.130*** (4.694) | 0.132*** (4.747) | 0.137*** (4.920) | 0.133*** (4.779) | 0.130*** (4.686) | 0.136*** (4.873) |
| Capital Ratio x Disclosure Regime | | | -7.347*** (-2.888) | | | | 2.931 (0.801) |
| Non-Performing Assets x Disclosure Regime | | | | 7.665*** (5.273) | | | 4.944** (2.477) |
| Return On Assets x Disclosure Regime | | | | | -24.050*** (-5.530) | | -18.239*** (-2.893) |
| Liquidity Ratio x Disclosure Regime | | | | | | 1.128 (0.866) | 0.953 (0.736) |
| Observations | 706,922 | 685,346 | 685,346 | 685,346 | 685,346 | 685,346 | 685,346 |
| Wald χ^2 | 329.2*** | 3332*** | 3514*** | 3685*** | 3667*** | 3331*** | 3813*** |
| Reg Type | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard |
| Annual Indicators | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Cluster | Bank | Bank | Bank | Bank | Bank | Bank | Bank |
| Period | All | All | All | All | All | All | All |

Table 3: Likelihood of receiving an enforcement action, continued

Panel B: Impact of news circulation on the likelihood of receiving an enforcement action

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--|---------------------|-------------------------|-------------------------|------------------------|------------------------|-------------------------|
| News Circulation | 0.152** (2.111) | 0.148* (1.903) | 0.086 (0.345) | -0.020 (-0.192) | 0.154** (1.998) | 0.463*** (3.579) |
| Size | | 0.032 (1.192) | 0.032 (1.205) | 0.031 (1.172) | 0.031 (1.181) | 0.035 (1.331) |
| Capital Ratio | | -14.748*** (-6.883) | -15.017*** (-6.521) | -14.897*** (-6.934) | -14.724*** (-6.862) | -14.621*** (-6.836) |
| Non-Performing Assets | | 22.024*** (16.849) | 22.029*** (16.844) | 20.924*** (14.659) | 22.049*** (16.835) | 22.129*** (16.901) |
| Return On Assets | | -44.711*** (-10.045) | -44.723*** (-10.049) | -44.246*** (-9.911) | -45.482*** (-9.413) | -44.779*** (-10.057) |
| Liquidity Ratio | | -0.178 (-0.223) | -0.182 (-0.227) | -0.200 (-0.250) | -0.185 (-0.231) | 1.238 (1.331) |
| Change in Capital Ratio | | -0.705*** (-3.216) | -0.704*** (-3.217) | -0.704*** (-3.205) | -0.703*** (-3.203) | -0.695*** (-3.167) |
| Change in Liquidity Ratio | | -0.069 (-0.759) | -0.068 (-0.754) | -0.073 (-0.811) | -0.067 (-0.745) | -0.062 (-0.684) |
| Change in Loans | | -1.048*** (-3.312) | -1.047*** (-3.310) | -1.046*** (-3.305) | -1.047*** (-3.306) | -1.039*** (-3.269) |
| log(Distance) | | 0.133*** (4.150) | 0.133*** (4.133) | 0.140*** (4.298) | 0.133*** (4.123) | 0.128*** (3.946) |
| Capital Ratio x News Circulation | | | 0.867 (0.275) | | | |
| Non-Performing Assets x News Circulation | | | | 3.434** (1.995) | | |
| Return On Assets x News Circulation | | | | | 2.265 (0.487) | |
| Liquidity Ratio x News Circulation | | | | | | -5.076*** (-3.025) |
| Observations | 313,080 | 309,825 | 309,825 | 309,825 | 309,825 | 309,825 |
| Wald χ^2 | 4.458*** | 2057*** | 2057*** | 2049*** | 2055*** | 2020*** |
| Reg Type | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard |
| Annual Indicators | No | No | No | No | No | No |
| Cluster | Bank | Bank | Bank | Bank | Bank | Bank |
| Period | After Disclosure | After Disclosure | After Disclosure | After Disclosure | After Disclosure | After Disclosure |

Table 3: Likelihood of receiving an enforcement action, continued

Panel C: Impact of regulator strictness on the likelihood of receiving an enforcement action

| | (1) | (2) | (3) | (4) | (5) | (6) |
|--|------------|------------|------------|------------|------------|------------|
| Disclosure Regime | 1.308*** | 1.216*** | 1.669*** | 0.457 | 0.752 | 1.210** |
| Strict | (10.298) | (2.621) | (3.432) | (0.904) | (1.514) | (2.475) |
| | -0.038 | 0.197 | 1.102*** | -0.001 | 0.065 | 0.171 |
| | (-0.287) | (1.389) | (3.537) | (-0.008) | (0.458) | (0.746) |
| Disclosure Regime x Strict | -0.471*** | -0.518*** | -0.961** | -0.311 | -0.411** | -0.384 |
| | (-2.738) | (-2.922) | (-2.021) | (-1.284) | (-2.307) | (-1.283) |
| Capital Ratio x Strict | | | -14.172*** | | | |
| | | | (-3.434) | | | |
| Capital Ratio x Disclosure Regime | | | -9.491*** | | | |
| | | | (-2.634) | | | |
| Capital Ratio x Strict x Disclosure Regime | | | 7.836 | | | |
| | | | (1.248) | | | |
| Non-Performing Assets x Strict | | | | 2.150 | | |
| | | | | (1.115) | | |
| Non-Performing Assets x Disclosure Regime | | | | 8.702*** | | |
| | | | | (4.419) | | |
| Non-Performing Assets x Strict x Disclosure Regime | | | | -2.230 | | |
| | | | | (-0.721) | | |
| Return On Assets x Strict | | | | | -15.124** | |
| | | | | | (-2.515) | |
| Return On Assets x Disclosure Regime | | | | | -26.200*** | |
| | | | | | (-4.524) | |
| Return On Assets x Strict x Disclosure Regime | | | | | 5.845 | |
| | | | | | (0.678) | |
| Liquidity Ratio x Strict | | | | | | 0.345 |
| | | | | | | (0.150) |
| Liquidity Ratio x Disclosure Regime | | | | | | 0.074 |
| | | | | | | (0.044) |
| Liquidity Ratio x Strict x Disclosure Regime | | | | | | -2.409 |
| | | | | | | (-0.635) |
| Observations | 480,358 | 468,474 | 468,474 | 468,474 | 468,474 | 468,474 |
| Wald χ^2 | 135.6*** | 2485*** | 2596*** | 2663*** | 2672*** | 2492*** |
| Reg Type | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard | Cox Hazard |
| Annual Indicators | No | Yes | Yes | Yes | Yes | Yes |
| Controls | No | Yes | Yes | Yes | Yes | Yes |
| Cluster | Bank | Bank | Bank | Bank | Bank | Bank |
| Period | All | All | All | All | All | All |

Table 4: 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 1983–1997 (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 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 | -0.259*** (-4.834) | -0.050*** (-5.138) | -0.356*** (-3.444) | 0.031 (0.523) | -0.058*** (-6.038) | 0.327** (2.249) | -0.065 (-1.064) | -0.053*** (-5.586) | 0.265** (2.019) |
| Post EDO x Disclosure Regime | 0.091 (1.148) | -0.037*** (-3.212) | -0.063*** (-5.088) | -0.355*** (-3.180) | -0.031* (-1.962) | -0.037** (-2.328) | -0.425*** (-3.528) | -0.031* (-1.938) | -0.030* (-1.886) |
| Size | | | 0.033*** (3.254) | | | -0.035*** (-2.590) | | | -0.026** (-2.262) |
| Return On Assets | | | 1.929*** (2.977) | | | 4.765*** (4.856) | | | 3.556*** (3.709) |
| Liquidity Ratio | | | -0.243 (-0.660) | | | 0.027 (0.094) | | | -0.303 (-0.955) |
| Observations | 23,099 | 23,099 | 23,022 | 8,438 | 8,438 | 8,399 | 8,774 | 8,774 | 8,749 |
| Adjusted R-squared | 0.056 | 0.971 | 0.973 | 0.048 | 0.975 | 0.976 | 0.098 | 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 4: 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 (0.508) | | | 0.035 (0.508) | | | 0.017 (0.183) | | |
| Post EDO | 0.154*** (2.846) | 0.083*** (4.963) | -0.732*** (-4.512) | 0.148*** (2.832) | 0.077*** (4.940) | -0.690*** (-4.335) | 0.135** (2.000) | 0.081*** (3.525) | -0.634*** (-3.031) |
| Treatment x Post EDO | -0.206*** (-3.346) | -0.206*** (-9.297) | -0.184*** (-8.799) | -0.143** (-2.425) | -0.166*** (-8.327) | -0.150*** (-7.740) | -0.344*** (-4.418) | -0.289*** (-9.176) | -0.249*** (-8.198) |
| Size | | | 0.072*** (4.744) | | | 0.070*** (4.576) | | | 0.061*** (3.212) |
| Return On Assets | | | 1.113 (1.405) | | | -0.056 (-0.074) | | | 5.030*** (4.866) |
| Liquidity Ratio | | | -0.057 (-0.164) | | | -0.332 (-0.986) | | | 0.242 (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 4: 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*** (-2.821) | -0.012 (-0.332) | 0.275 (1.436) |
| Treatment x Post EDO (4 quarters) | 0.036 (0.967) | 0.058 (1.452) | 0.083** (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 5: 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 (-1.182) | -0.062 (-1.552) | -0.095 (-1.468) | -10.866*** (-167.825) | -0.002 (-0.063) | -0.023 (-0.609) | -0.032 (-0.535) | -9.738*** (-53.599) | -0.139*** (-2.687) | -0.138** (-2.521) | -0.237*** (-2.737) | -13.715*** (-72.901) |
| News Coverage | 0.609*** (3.762) | 0.509*** (2.927) | 0.520*** (2.967) | 0.502*** (2.876) | 0.584*** (3.716) | 0.460*** (2.770) | 0.463*** (2.763) | 0.445*** (2.668) | 0.737*** (3.885) | 0.747*** (3.555) | 0.783*** (3.716) | 0.765*** (3.636) |
| Post EDO x News Coverage | | 0.150 (1.099) | 0.144 (1.048) | -0.519*** (-2.961) | | 0.183 (1.429) | 0.178 (1.377) | -0.415** (-2.554) | | -0.015 (-0.087) | -0.029 (-0.167) | -0.857*** (-3.875) |
| Size | | | | 0.981*** (366.565) | | | | 0.892*** (57.092) | | | | 1.203*** (81.314) |
| Return On Assets | | | | 0.270 (0.456) | | | | 1.330* (1.941) | | | | -0.025 (-0.017) |
| Liquidity Ratio | | | | -0.053 (-0.564) | | | | -1.431*** (-5.842) | | | | 3.556*** (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 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 1983–1997. 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 | -0.032*** (-5.241) | -0.019*** (-4.530) | 0.094*** (3.849) | -0.018*** (-11.325) | -0.007*** (-6.416) | -0.019*** (-3.379) | 0.024*** (8.024) | 0.015*** (5.765) | -0.040*** (-4.574) |
| Post EDO x Disclosure Regime | -0.024*** (-2.700) | -0.003 (-0.562) | 0.000 (0.014) | 0.008*** (3.789) | 0.006*** (4.845) | 0.002 (1.577) | -0.015*** (-4.622) | -0.011*** (-4.191) | -0.010*** (-3.558) |
| Size | | | -0.009*** (-3.956) | | | 0.002*** (2.968) | | | |
| Return On Assets | | | 0.062 (0.511) | | | 0.698*** (18.427) | | | |
| Liquidity Ratio | | | -0.260*** (-4.925) | | | 0.025 (1.557) | | | |
| Observations | 23,103 | 23,103 | 23,025 | 23,103 | 23,103 | 23,025 | 23,102 | 23,102 | 23,025 |
| Adjusted R-squared | 0.041 | 0.743 | 0.759 | 0.078 | 0.672 | 0.710 | 0.135 | 0.489 | 0.523 |
| 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 | -0.021*** (-3.272) | -0.018*** (-4.154) | 0.120*** (2.602) | -0.015*** (-8.902) | -0.006*** (-5.285) | -0.002 (-0.138) | 0.018*** (5.897) | 0.013*** (4.928) | -0.031* (-1.658) |
| Post EDO x Disclosure Regime | -0.035*** (-2.738) | -0.010 (-1.524) | -0.010 (-1.455) | 0.009*** (3.496) | 0.007*** (4.435) | 0.007*** (3.465) | -0.009** (-2.376) | -0.009*** (-3.020) | -0.010*** (-2.936) |
| Size | | | -0.012*** (-2.859) | | | -0.000 (-0.345) | | | 0.004** (2.466) |
| Return On Assets | | | 0.972*** (3.336) | | | 0.331*** (3.089) | | | -0.236 (-1.271) |
| Liquidity Ratio | | | -0.061 (-0.530) | | | 0.018 (0.458) | | | -0.009 (-0.214) |
| Observations | 8,438 | 8,438 | 8,399 | 8,438 | 8,438 | 8,399 | 8,438 | 8,438 | 8,399 |
| Adjusted R-squared | 0.042 | 0.692 | 0.697 | 0.103 | 0.582 | 0.585 | 0.159 | 0.512 | 0.514 |
| 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 | -0.026*** (-3.842) | -0.022*** (-4.966) | 0.080** (2.144) | -0.017*** (-9.563) | -0.006*** (-5.509) | -0.019* (-1.664) | 0.019*** (6.128) | 0.014*** (5.224) | -0.048*** (-2.722) |
| Post EDO x Disclosure Regime | -0.051*** (-3.498) | -0.012* (-1.749) | -0.009 (-1.210) | 0.007** (2.215) | 0.008*** (4.811) | 0.006*** (3.676) | -0.011*** (-2.768) | -0.012*** (-3.943) | -0.014*** (-4.381) |
| Size | | | -0.009*** (-2.706) | | | 0.001 (1.372) | | | 0.006*** (3.676) |
| Return On Assets | | | 0.849*** (3.025) | | | 0.390*** (3.333) | | | -0.276 (-1.642) |
| Liquidity Ratio | | | 0.019 (0.178) | | | 0.014 (0.369) | | | -0.010 (-0.257) |
| Observations | 8,777 | 8,777 | 8,752 | 8,777 | 8,777 | 8,752 | 8,777 | 8,777 | 8,752 |
| Adjusted R-squared | 0.049 | 0.744 | 0.748 | 0.081 | 0.674 | 0.683 | 0.118 | 0.499 | 0.506 |
| 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 (DDD) 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. **Panel A** presents estimation for a full sample of banks matched on size and geographic location. **Panel B** shows the covariate balance for treatment (EDO banks) and control (non-EDO banks) matched using a two step procedure: entropy balance using four quarters prior to the receipt of an EDO for treatment banks following by propensity score matching (nearest neighbor). Banks are matched separately in the pre- and post-disclosure periods. **Panel C** presents the results of the DDD estimation for the matched sample using entropy and propensity score matching. 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 1983–1997. 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: Impact of the disclosure regime (matched on size and geography sample)

| | Loans | Loans | Loans | Total | Total | Total | Capital | Capital | Capital | Non-Performing | Non-Performing | Non-Performing |
|--|----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|----------------|----------------|----------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Treatment | 0.083*** | | | 0.013 | | | -0.014*** | | | 0.019*** | | |
| | (10.205) | | | (0.189) | | | (-7.161) | | | (9.700) | | |
| Post EDO | -0.014 | 0.004 | 0.110*** | -0.025 | 0.055*** | -0.423*** | -0.005** | -0.001 | -0.019*** | 0.000 | -0.000 | -0.030*** |
| | (-1.528) | (0.512) | (5.285) | (-0.355) | (2.593) | (-4.830) | (-2.464) | (-0.546) | (-3.938) | (0.068) | (-0.002) | (-5.058) |
| Treatment x Post EDO | -0.016 | -0.029*** | -0.025*** | -0.243** | -0.159*** | -0.130*** | -0.012*** | -0.009*** | -0.003* | 0.024*** | 0.014*** | 0.006* |
| | (-1.346) | (-3.974) | (-3.275) | (-2.337) | (-8.679) | (-7.120) | (-4.243) | (-4.479) | (-1.691) | (6.819) | (3.957) | (1.746) |
| Treatment x Disclosure Regime | -0.013 | -0.001 | -0.001 | 0.059 | 0.001 | 0.006 | -0.002 | -0.010*** | -0.010*** | -0.002 | 0.006*** | 0.006*** |
| | (-1.312) | (-0.135) | (-0.189) | (0.758) | (0.034) | (0.344) | (-0.945) | (-5.264) | (-6.308) | (-0.796) | (2.809) | (3.102) |
| Post EDO x Disclosure Regime | -0.010 | 0.002 | 0.006 | 0.088 | 0.014 | -0.002 | -0.003 | -0.001 | -0.002 | 0.004* | -0.000 | -0.003 |
| | (-0.905) | (0.243) | (0.802) | (0.976) | (0.606) | (-0.103) | (-1.210) | (-0.574) | (-1.171) | (1.768) | (-0.253) | (-1.503) |
| Treatment x Post EDO x Disclosure Regime | -0.018 | -0.005 | -0.006 | 0.004 | -0.061** | -0.067*** | 0.012*** | 0.011*** | 0.007*** | -0.020*** | -0.010*** | -0.006 |
| | (-1.328) | (-0.533) | (-0.689) | (0.034) | (-2.419) | (-2.817) | (3.758) | (4.606) | (3.591) | (-5.300) | (-2.796) | (-1.639) |
| Size | | | -0.009*** | | | 0.044*** | | | 0.001*** | | | 0.003*** |
| | | | (-4.740) | | | (5.337) | | | (3.504) | | | (6.499) |
| Return On Assets | | | 0.324*** | | | 1.244** | | | 0.655*** | | | -0.825*** |
| | | | (3.000) | | | (2.355) | | | (18.984) | | | (-19.864) |
| Liquidity Ratio | | | -0.214*** | | | -0.034 | | | 0.024** | | | -0.034*** |
| | | | (-5.513) | | | (-0.162) | | | (2.250) | | | (-3.075) |
| Observations | 43,284 | 43,284 | 43,075 | 43,239 | 43,239 | 43,034 | 43,284 | 43,284 | 43,075 | 43,131 | 43,131 | 42,928 |
| Adjusted R-squared | 0.065 | 0.789 | 0.808 | 0.057 | 0.967 | 0.972 | 0.090 | 0.717 | 0.755 | 0.194 | 0.557 | 0.579 |
| 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 7: Impact of the disclosure regime on banks (matched sample), continued

Panel B: Entropy-matched covariate balance

| Variable | Before Disclosure Regime (Entropy Matched) | | | | | | | | After Disclosure Regime (Entropy Matched) | | | | | | | |
|------------------|--|-----------|--------|-------|---------------|--------|------------|---------------|---|-----------|--------|-------|---------------|--------|------------|---------------|
| | N | EDO Banks | | | Non-EDO banks | | | | N | EDO Banks | | | Non-EDO banks | | | |
| | | Mean | Sd | N | Mean | Sd | Difference | (t-statistic) | | Mean | Sd | N | Mean | Sd | Difference | (t-statistic) |
| (1) | (2) | (1) - (2) | | (3) | (4) | | (3) - (4) | | | | | | | | | |
| Size | 1,049 | 10.2800 | 1.0035 | 1,049 | 10.2700 | 1.0035 | 0.010 | (0.228) | 3,564 | 11.1200 | 1.2418 | 3,564 | 11.1200 | 1.2418 | 0.0000 | (0.000) |
| Return On Assets | 1,049 | -0.0050 | 0.0136 | 1,049 | -0.0050 | 0.0136 | 0.0000 | (0.003) | 3,564 | -0.0025 | 0.0108 | 3,564 | -0.0025 | 0.0108 | 0.0000 | (0.043) |
| Capital Ratio | 1,049 | 0.0673 | 0.0227 | 1,049 | 0.0674 | 0.0229 | -0.0001 | (-0.081) | 3,564 | 0.0736 | 0.0329 | 3,564 | 0.0737 | 0.0330 | 0.0000 | (-0.026) |
| Liquidity Ratio | 1,049 | 0.0795 | 0.0434 | 1,049 | 0.0795 | 0.0434 | 0.0000 | (-0.005) | 3,564 | 0.0674 | 0.0422 | 3,564 | 0.0674 | 0.0422 | 0.0000 | (-0.010) |

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

Panel C: Impact of the disclosure regime (entropy and propensity-score matched sample)

| | Loans | Loans | Loans | Total | Total | Total | Capital | Capital | Capital | Non-Performing | Non-Performing | Non-Performing |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------------|----------------|----------------|
| | (1) | (2) | (3) | (4) | Deposits | Deposits | Ratio | Ratio | Ratio | Assets | Assets | Assets |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Treatment | 0.081*** | | | -0.071 | | | -0.011*** | | | 0.022*** | | |
| | (10.789) | | | (-0.988) | | | (-6.173) | | | (12.213) | | |
| Post EDO | 0.017** | 0.012* | 0.116*** | 0.238*** | 0.069*** | -0.317*** | -0.012*** | 0.000 | -0.017*** | -0.002 | 0.001 | -0.026*** |
| | (2.095) | (1.795) | (6.330) | (3.133) | (3.972) | (-4.688) | (-6.749) | (0.267) | (-4.323) | (-0.974) | (0.575) | (-4.613) |
| Treatment x Post EDO | -0.049*** | -0.047*** | -0.051*** | -0.545*** | -0.189*** | -0.155*** | -0.003 | -0.010*** | -0.003* | 0.026*** | 0.012*** | 0.006* |
| | (-4.527) | (-6.332) | (-6.582) | (-5.113) | (-9.734) | (-8.040) | (-1.344) | (-5.661) | (-1.765) | (8.158) | (3.641) | (1.749) |
| Treatment x Disclosure Regime | 0.028*** | -0.002 | -0.003 | 0.437*** | -0.020 | -0.011 | -0.011*** | -0.011*** | -0.011*** | -0.002 | 0.008*** | 0.008*** |
| | (3.136) | (-0.341) | (-0.583) | (5.438) | (-1.168) | (-0.685) | (-4.801) | (-7.285) | (-8.096) | (-0.899) | (4.524) | (4.914) |
| Post EDO x Disclosure Regime | 0.001 | 0.008 | 0.003 | -0.199** | -0.023 | -0.029* | 0.006** | -0.001 | -0.001 | 0.004* | -0.002 | -0.001 |
| | (0.100) | (1.180) | (0.464) | (-2.131) | (-1.192) | (-1.716) | (2.541) | (-0.819) | (-0.905) | (1.857) | (-0.825) | (-0.586) |
| Treatment x Post EDO x Disclosure Regime | -0.026** | -0.016** | -0.008 | 0.337*** | 0.010 | -0.014 | 0.002 | 0.011*** | 0.007*** | -0.021*** | -0.008** | -0.007** |
| | (-2.069) | (-1.967) | (-0.900) | (2.831) | (0.439) | (-0.628) | (0.615) | (5.465) | (3.635) | (-6.113) | (-2.327) | (-2.016) |
| Size | | | -0.008*** | | | 0.037*** | | | 0.001*** | | | 0.003*** |
| | | | (-5.112) | | | (6.078) | | | (3.992) | | | (6.105) |
| Return On Assets | | | 0.053 | | | 1.412*** | | | 0.637*** | | | -0.824*** |
| | | | (0.500) | | | (2.835) | | | (18.720) | | | (-20.093) |
| Liquidity Ratio | | | -0.227*** | | | -0.285 | | | 0.018* | | | -0.017 |
| | | | (-6.416) | | | (-1.434) | | | (1.746) | | | (-1.589) |
| Observations | 47,598 | 47,598 | 47,426 | 47,593 | 47,593 | 47,422 | 47,598 | 47,598 | 47,426 | 47,580 | 47,580 | 47,411 |
| Adjusted R-squared | 0.078 | 0.807 | 0.822 | 0.034 | 0.973 | 0.977 | 0.123 | 0.775 | 0.808 | 0.228 | 0.576 | 0.597 |
| 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: Impact of disclosure of enforcement actions on bank failure

This table presents the coefficients from estimating hazard models of time to bank failure. *Disclosure Regime* takes the value of 1 for the quarters after the introduction of FIRREA in 1989Q3 and 0 otherwise. *Treatment* takes the value of 1 for banks that received an EDO, and 0 otherwise. 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 1983-1997. 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) | (5) |
|---------------------------------|-----------------------|-----------------------|-------------------------|-------------------------|------------------------|
| Disclosure Regime | -0.763 (-1.642) | -0.494*** (-2.652) | 0.273 (1.047) | 0.310* (1.852) | -0.252* (-1.792) |
| Treatment | -0.941*** (-5.869) | -0.925*** (-5.783) | -1.464*** (-6.980) | -1.483*** (-7.070) | 1.205*** (5.527) |
| Treatment x Disclosure Regime | 2.113*** (10.968) | 2.190*** (11.526) | 1.427*** (6.275) | 1.478*** (6.495) | -1.201*** (-5.196) |
| Size | | | -0.217*** (-8.468) | -0.243*** (-9.453) | 0.198*** (6.720) |
| Capital Ratio | | | -78.916*** (-30.642) | -80.310*** (-31.601) | 65.278*** (8.821) |
| Non-performing Assets | | | 13.962*** (18.284) | 13.945*** (18.636) | -11.335*** (-7.861) |
| Return on Assets | | | -19.884*** (-8.234) | -17.890*** (-8.331) | 14.541*** (6.243) |
| Liquidity Ratio | | | -3.523*** (-5.741) | -3.715*** (-5.991) | 3.020*** (4.782) |
| Interest on Deposits | | | -2.182 (-0.826) | -7.831*** (-3.884) | 6.365*** (3.566) |
| Commercial and Industrial Loans | | | 0.214*** (4.856) | 0.246*** (6.786) | -0.200*** (-5.389) |
| Real Estate Loans | | | -0.638*** (-3.866) | -0.490*** (-2.926) | 0.399*** (2.820) |
| Observations | 730,270 | 730,270 | 654,453 | 654,453 | 654,453 |
| Wald χ^2 | 658.9*** | 846.5*** | 5880*** | 9394*** | 579.5*** |
| Reg Type | Cox Hazard | Weibull Hazard | Cox Hazard | Weibull Hazard | Weibull AFT |
| Annual Indicators | Yes | Yes | Yes | Yes | Yes |
| Cluster | Bank | Bank | Bank | Bank | Bank |
| Period | All | All | All | All | All |