

# Too Big to Discipline?

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## Abstract

Bank supervisors can compel banks to limit their risk by means of formal enforcement actions. Moreover, formal enforcement actions are public, so they may communicate important information to investors and depositors about banks' financial condition and, thus, constitute a source of market discipline. In this paper, we document that US supervisors appear to have a bias when issuing formal enforcement actions: Very large financial institutions are less likely to receive formal enforcement actions than one would expect on the basis of their fundamentals. At the same time, they do not seem to be less risky than smaller, yet still large, financial firms. Very large financial institutions seem to be too big to publicly discipline.

Keywords: bank supervision, enforcement actions, bank risk, disclosure, too big to fail.

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Bank supervision entails both monitoring financial institutions and compelling them to take corrective actions if they follow unsafe or unsound practices or do not comply with regulations. The main tool to compel regulated institutions to change their practices is the issuance of enforcement actions, which direct financial institutions to take (or prevent them from taking) certain actions specified by the supervisor. For example, an enforcement action may prompt a bank to maintain a certain level of capital or an adequate allowance for loan and lease losses or may prevent a bank from paying out dividends or acquiring other institutions.

Bank regulation in the US requires supervisors to disclose the formal enforcement actions issued against banks. This requirement presents a challenge for supervisors, who must trade off two effects of the issuance of a formal enforcement action. On the one hand, the enforcement action is expected to have a direct and positive effect on the bank's condition by forcing the bank to take corrective actions. On the other hand, the disclosure of the enforcement action, by revealing to investors and depositors the condition of the bank, may lead to a run on the bank. If investors and depositors extrapolate from the enforcement action that other banks may also be in trouble, the disclosure of an enforcement action may also affect the stability of the banking sector. In this paper, we investigate whether bank supervisors trade off these two effects differently for very large banks. In particular, we investigate whether there are banks that are “too large to discipline” by means of enforcement actions.

The answer to this question has important implications for the risk taking incentives of large financial institutions. If supervisors are less likely to issue formal enforcement actions against these financial institutions, the latter's incentives to take on risk will be stronger for two reasons. First, large banks will expect that they will be not be forced to correct unsafe, yet privately profitable, practices. Second, large banks will expect a softer market discipline, since supervisors' reluctance to issue enforcement actions may limit the amount of negative information received by market participants.

To investigate the possibility that supervisors are less likely to issue formal enforcement actions against very large banks, we collect all formal enforcement actions issued against a sample of large bank holding companies and their bank subsidiaries in the period 2007–2010. We analyze the text of these enforcement actions to determine which ones are related to bank risk, as opposed to those related to compliance with specific bank regulations—such as the Bank Secrecy Act, anti-money laundering regulations, or the Community Reinvestment Act. Our first result is that in the 2007–2010 period bank supervisors issued only one risk-related enforcement action against the top 50 financial institutions. We then estimate the relation between bank holding company size and the probability that a risk-related formal enforcement action is issued against the bank holding company or its subsidiaries and find that, within our sample of large banks, the very large banks (which we label too-big-to-discipline or, simply, TBTD) are less likely to receive an enforcement action, controlling for other predictors of the issuance of enforcement actions.

TBTD banks are highly complex institutions and their activities, operations, and management may differ substantially from those of banks of smaller size. Therefore, a possible explanation for our results is that TBTD institutions are less likely to receive formal enforcement actions because they are less risky. To investigate this possibility we identify the bank holding companies that fail during the financial crisis. We consider that a company fails if it is either closed by supervisors or acquired by other financial institutions with supervisors' intervention and support. We show that, in contrast to the case of enforcement actions, TBTD financial institutions are not significantly less likely to fail during the crisis than large, yet relatively smaller, ones. This result suggests, although we also consider alternative explanations, that TBTD banks did not take on less risk than smaller banks, which could have, otherwise, explained the relation between bank size and the issuance of enforcement actions.

In this paper, we explore whether there is another dimension of regulatory forbearance in bank supervision, not considered in previous literature, namely the reluctance to issue enforcement actions against very large institutions. Therefore, the paper is very much related to the broader literature on regulatory forbearance and, more specifically, on too-big-to-fail policies. Several articles in this literature have documented the value of being perceived as too-big-to-fail (see, e.g., O'hara and Shaw (1990), Kane (2000), Penas and Unal (2004), Morgan and Stiroh (2005), Rime (2005)). Our paper provides another another reason for the existence of a TBTF premium beyond the implicit government guarantee in case of likely insolvency.

The paper also contributes to the literature that studies the optimal disclosure of supervisory information to markets. In particular, there has been a long debate as to whether supervisors should disclose the results of on-site examinations of regulated banks (see, e.g., Jordan et al. (1999) or Prescott (2008)). A supervisor's decision whether to issue a formal enforcement action against a bank is, as we describe in detail in Section 1, tightly related to the confidential results of on-site bank examinations performed by the supervisor. By issuing an enforcement action, a supervisor, thus, reveals part of the confidential information obtained through on-site inspections. Therefore, whether supervisors' concerns about the disclosure of enforcement actions are justified depends on the extent to which on-site examinations provide information that is, otherwise, not available to market participants. Slovin et al. (1999) and Jordan et al. (2000) show that banks experience negative abnormal returns upon the announcement of enforcement actions. However, Jordan et al. (1999) find that the disclosure of enforcement actions in the midst of the Savings and Loans crisis did not cause bank runs or otherwise had any destabilizing effect. Berger and Davies (1998) and DeYoung et al. (2001) show that bank examinations produce information not already incorporated in security prices, although Cole and Gunther (1998) and Berger et al. (2000) find that this information degrades in a few months. The recent financial crisis has revived this debate, especially in relation to the disclosure of the results of the stress-tests performed during the crisis (see, e.g., Goldstein and Sapra (2014)).

# 1 Enforcement Actions

An enforcement action is a supervisory tool that allows the regulator to direct the behavior of banking firms. Regulators should initiate enforcement actions if they find evidence of unsound or unsafe practices or conditions, such as operating with an inadequate level of capital or liquidity or without adequate internal controls, engaging in hazardous lending and lax collection practices or in speculative or hazardous investment policies, the lacking effective risk management practices, or violating laws and regulations. Through enforcement actions, regulatory agencies have the power to, among other things, improve capital, restrict asset growth and risky lending, restrict dividends, levy fines, and remove management.

Enforcement actions can be issued against financial institutions of individuals. We focus on actions issued against financial institutions, because actions against individuals are generally related to the commission of fraud or non-compliance with fiduciary duties by particular individuals. Therefore, enforcement actions against individuals need not convey much information about the financial condition of the firm. Both stand-alone depository institutions and bank holding companies can be targeted by enforcement actions. Moreover, holding companies and each of their insured subsidiaries can receive an enforcement action simultaneously.

Enforcement actions differ in their severity and level of enforceability. Informal enforcement actions attempt to persuade banks to take certain actions and, although they main contain quite specific provisions, they are not enforceable in a court of law (Curry et al. (1999)). Very importantly, the supervisor issuing an informal enforcement action is not mandated to make it public and will typically keep it confidential.<sup>1</sup> The confidentiality of informal enforcement actions is in keeping with the confidentiality of the results of on-site examinations and the spirit of much of bank supervisory activity. However, if the problems identified by the on-site examination are severe enough (or if the bank has not complied with previous informal enforcement actions), supervisory agencies may decide or be compelled to issue a formal enforcement action against the bank. Formal enforcement actions are enforceable in court and often carry legal and monetary penalties for non-compliance. Moreover, since FIRREA in 1989 and the Crime Control Act (CCA) of 1990, most formal enforcement actions must be made public by the supervisor.

There are several types of *formal* enforcement actions taken against institutions. Formal *Written Agreements* consist of corrective actions that a financial institution's management and directors must take. These actions are issued with the consent and agreement of the institution and are both the least severe and the most frequent type. *Cease and Desist Orders* (C&D) are issued when the agency requires an entity to change certain practices, to take action to correct violations or practices, and to follow any prescriptions contained in the order. *Civil Money Penalties* (CMP) work as a fine for various types of infractions. In case the firm

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<sup>1</sup>In the case of publicly traded banks, securities regulations may require the bank to disclose the informal enforcement action if it is considered material, but there is room for discretion regarding disclosure and the form and timing of such disclosure.

does not pay the CMP, the party can be subject to criminal penalties. *Prompt Corrective Action Directive (PCA)* enforcement actions correspond to supervisory actions related to the capital level of a bank or thrift institution. The PCA provisions classify insured depository institutions into five categories based on their capital levels. PCAs are applied for capital categories (3) undercapitalized; (4) significantly undercapitalized; and (5) critically undercapitalized. PCAs may also be supplemented by other actions at the supervisor's discretion. Finally, the most severe enforcement actions are the *Termination of Deposit Insurance, Appointment of conservator or Receivership, the 4(m) Agreement*,<sup>2</sup> and *Termination of Membership of the FRB*.

The most severe enforcement actions are very infrequent. The most frequent ones are written agreements consisting of dividend restrictions, debt and stock redemption restrictions, capital levels, inadequate reserves, asset improvement plans, board oversight, liquidity, and funds management, among others (Brown, 2009). In severity, Written Agreements are followed by C&D orders and then Termination of Insurance. While PCAs are initiated when there are severe capital problems, any enforcement action can contain directives to improve and change capital levels. Brunmeier and Willardson (2006) explain that institutions are more likely to sign an Agreement than a C&D order and that the civil money penalties in the last 10 years have increasingly focused on compliance issues. Moreover, the authors find that between 2000 and 2005 written agreements primarily dealt with safety and soundness issues more frequently than C&D orders.

Enforcement actions generally are the result of on-site examinations by the supervisory agencies. If an on-site examination reveals non-compliance with laws and regulations, financial weaknesses, or a potential deviation from safe and sound banking practices, the supervisor may (or may be compelled to) issue an enforcement action against the bank. Following on-site examinations of commercial banks or depository institutions, supervisors rate the adequacy of the institution's Capital, Asset Quality, Management, Earnings, Liquidity and Sensitivity to Market Risk on a scale of 1 to 5. Those ratings are combined to form the composite CAMELS rating ranging from 1 (best) to 5 (worst). A similar procedure is applied to bank holding companies, leading to a rating known as the RFI/C(D).<sup>3</sup> Although obtaining a rating of 4 or worse is not a necessary or sufficient condition for the initiation of an enforcement action, a rating downgrade to 4 or 5 usually triggers a formal enforcement action. Enforcement actions are often applied gradually, with informal actions preceding formal ones (Gilbert and Vaughan (2001), Curry et al. (2003); Brunmeier and Willardson (2006)). Although ratings revisions are closely related to the issuing of enforcement actions, the latter are not an immediate consequence of the former. Brunmeier and Willardson (2006) show that although the factors leading to lower satisfactory ratings and those producing enforcement actions against

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<sup>2</sup>This action is named after section 4(m) of the Bank Holding Company Act, which requires that the Board take corrective action against any financial holding company (FHC) with a depository institution subsidiary that fails to remain well managed or standard capital levels. The Board of Governors **does not disclose** publicly 4(m) Agreements in order to avoid disclosing the institution's management rating.

<sup>3</sup>RFI/C(D) ratings replaced the BOPEC ratings used until 2004.

institutions are positively correlated, there is a lag, since actions are taken when examination results are final and can take considerable time to write, negotiate, and execute. The lag reported by the authors is of approximately one year. In the same line, Brown (2009) argue a spike in the number of enforcement actions released by the Federal Agencies during 2009-2010 as a consequence of the recent crisis started in 2007-2008.

In this paper, we analyze the enforcement actions issued by the four main federal banking agencies: the Federal Reserve System (FRB), the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC), and the Office of Thrift Supervision (OTS).

## 2 Data

### 2.1 Sample selection

We first select all firms with 4-digit SIC codes between 6000 and 6300 covered by the compensation database Execucomp and whose CEO is identified in this database in year 2006. Of the 167 firms so selected, we keep all firms with SIC codes 6020 (*Commercial Banks*), 6035 (*Savings Institutions, Federally Chartered*), and 6036 (*Savings Institutions, Not Federally Chartered*)—a total of 114 firms—and we exclude firms with SIC codes 6111 (*Federal Credit Agencies*) and 6282 (*Investment Advice*). To determine the inclusion of the 41 firms in the remaining SIC codes, we search the National Information Center of the Federal Financial Institutions Examination Council (FFIEC) to verify each firm’s institution type in year 2006.<sup>4</sup> We keep a firm in the sample firm if it is identified as any type of regulated institution.<sup>5</sup> We also keep in the sample those firms listed as primary dealers by the New York FED. This process yields a base sample of 130 firms in 2006, but we have to drop one (Center Financial Corp) because it does not match with Compustat Fundamentals. Therefore, our final sample has 129 firms. These firms are either single standing commercial banks, Bank Holding Companies (BHCs), or Financial Holding Companies (FHCs). For some of our specifications, we focus on the subsample of banks with SIC codes 6020, 6035, and 6036, since for these banks we have additional information.

### 2.2 Enforcement actions

A large number of the firms included in the sample are BHCs or FHCs. In such types of firms, supervisors are entitled to issue enforcement actions against either the holding company itself and/or one or more of its

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<sup>4</sup>These firms have SIC codes: 6099 (*Functions Rel. To Dep. Bkg.*), 6141 (*Personal Credit Institutions*), 6153 (*Short-Term Business Credit*), 6159 (*Misc Business Credit Instrn*), 6162 (*Mortgage Bankers & Loan Corr*), 6172 (*Finance Lessors*), 6199 (*Finance Services*), 6200 (*Security & Commodity Brokers*), 6211 (*Security Brokers & Dealers*). We access the National Information Center of the FFIEC at <http://www.ffiec.gov/nicpubweb/nicweb/SearchForm.aspx>.

<sup>5</sup>The classes of regulated institutions are: financial holding company, bank holding company, savings and loans holding company, federal savings bank, national bank, state member bank, FDIC-insured non-member bank, federal savings association.

depository subsidiaries.<sup>6</sup> To account for every enforcement action, we unfold each holding company into its regulated subsidiaries using the FDIC Institution Directory.<sup>7</sup>

We match our sample with the information provided by the FDIC for regulated top holders and their corresponding insured subsidiaries and cross-check with the information provided on-line by the FFIEC.<sup>8</sup> For each of the firms in the original sample of 129 firms, we manually check the names of the subsidiaries that correspond to any form of regulated institution by the FED, FDIC, OCC and OTS. We then match this final sample of banks' and subsidiaries' names with the data set of enforcement actions. We perform the merger of the holding companies and their subsidiaries using the RSSDID of each firm.

We construct a dummy variable,  $EA_{it}$ , which is equal to one if firm  $i$  (or any insured subsidiary) receives one or more firm-level enforcement actions related to solvency and soundness in year  $t$ , for  $t$  in the financial crisis period, which we define as the period from 2007 to 2010. To date the crisis, we follow the time-lines provided by the New York Fed (which dates the beginning of the "financial turmoil" in June 2007)<sup>9</sup> and the Saint Louis Fed (which dates the beginning of the financial crisis in February 2007).<sup>10</sup> and define 2007 to be the first year of the financial crisis.

To determine whether a bank holding company or depository subsidiary receives a risk related enforcement action during the financial crisis, we access the websites of the different federal bank supervisors and build a data set that contains all the enforcement actions issued from January 2007 to December 2010. We then manually match the data set of enforcement actions with our extended sample of 129 firms and all their insured subsidiaries and download the text of each matched enforcement action. By reading the text of each enforcement action, we identify whether the enforcement action is related to issues or risk, solvency, or soundness. Thus, we do not consider civil money penalties as risk-related enforcement actions, because in our sample they apply to non-compliance issues not directly related to solvency. Of the remaining C&D Orders and Written Agreements, we disregard those that are clearly not related to risk. In Appendix A.2, we report the enforcement actions issued against the firms in the sample and whether they could be considered risk related. We also provide examples that illustrate how we determine whether enforcement actions are risk related from their texts.

As we describe in detail below, several banks disappear as independent entities during the financial crisis.

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<sup>6</sup>For example, Bank of America is a FHC with several insured subsidiaries. If an on-site examination of an insured subsidiary results in soundness or solvency concerns, the FDIC can start actions against the subsidiary and, at the same time, the FED can prompt actions against the holding company.

<sup>7</sup><http://www.ffiec.gov/nicpubweb/nicweb/SearchForm.aspx>

<sup>8</sup>The FDIC defines *Regulatory top holder* as any company that directly or indirectly owns, controls or has power to vote 25 percent or more of a bank's or direct holding company's shares or controls in any manner the election of a majority of the directors or trustees of a bank or direct holding company or exercises a controlling influence over the management or policies of a bank or direct holding company. Information on Thrift Holding Companies that own Savings Associations but do not own banks is not currently available in the ID System. Source: Federal Reserve Board National Information Center data base.

<sup>9</sup>[http://www.ny.frb.org/research/global\\_economy/Crisis\\_Timeline.pdf](http://www.ny.frb.org/research/global_economy/Crisis_Timeline.pdf) (last accessed on October 17, 2013).

<sup>10</sup><http://timeline.stlouisfed.org/index.cfm?p=timeline> (last accessed on October 17, 2013).

The definition of  $EA_{it}$  implies that if a bank disappears in year  $t$  and the bank did not receive an enforcement action in year  $t$ , then  $EA_{it} = 0$ . However, it is not clear that one should assign a value of zero to a bank that lives only part of the year, since supervisors have less time during the year to issue an enforcement action against the bank. In the limiting case in which a bank closes at the beginning of the year, it is not possible or extremely unlikely that supervisors can issue an enforcement action in the year. Therefore, for robustness, we also define a dummy variable that is not defined (i.e., defined to be missing) for a year in which firm  $i$  fails and  $EA_{it} = 0$ . We also define a dummy variable,  $EA_i$ , that takes the value 1 if firm  $i$  receives an enforcement action during the crisis period and is zero otherwise.

Figure 1 graphs the evolution of the number of enforcement actions and the number of the types of enforcement actions that we consider in our analysis for the population of regulated institutions. Figure 2 graphs the same variables for the firms in our sample. From both graphs, one can see that whereas the number of enforcement actions is relatively low and stable in the period 1995-2006 (with a dip in the second half of the 1990s) and does not experience a large change in 2007, both the total number of enforcement actions as well as those that are risk related (in the case of our sample) or potentially risk related (in the case of the whole population of regulated institutions) increase dramatically in the years 2008-2010. As Figure 1 shows, the number of enforcement actions in these years greatly surpasses the number of enforcement actions during the Savings & Loans crisis in the early 1990s.

### 3 Enforcement Actions and Bank Size

As a first step to evaluating the relation between bank size and the incidence of enforcement actions, we order the firms of the sample by size (measured as the natural logarithm of total assets as of December 2006) and divide the sample by size into 13 groups of 10 firms each (except for the top group, which has only 9 firms). In Table 5 we display the number of formal enforcement actions by size group. Strikingly, of the fifteen firms in our sample that receive at least one risk-related enforcement action during the crisis period, not a single one is in the top four size groups (i.e., the top 39 firms by total assets).

To investigate whether the absence of enforcement actions among the largest firms is due to the fact that they are less risky, we estimate a simple linear probability model to predict the issuance of a formal enforcement action. In the model, we include as regressors variables that previous papers have found to be predictive of supervisory ratings changes (as well as a subsample of the regressors used by Peek and Rosengren (1997) to predict formal enforcement actions issued against New England banks in the period



Figure 1: Historical incidence of enforcement actions

Institutional EA issued against all the banks in the U.S system. All regulators.

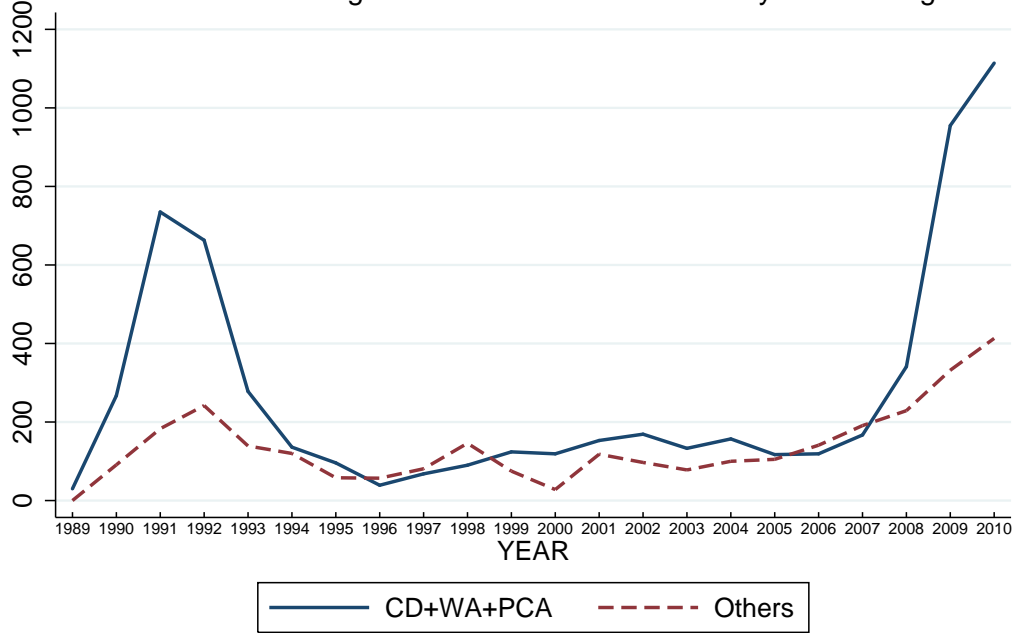


Figure 1

Figure 2: Historical incidence of enforcement actions

Institutional EA issued against firms in the sample. All regulators.

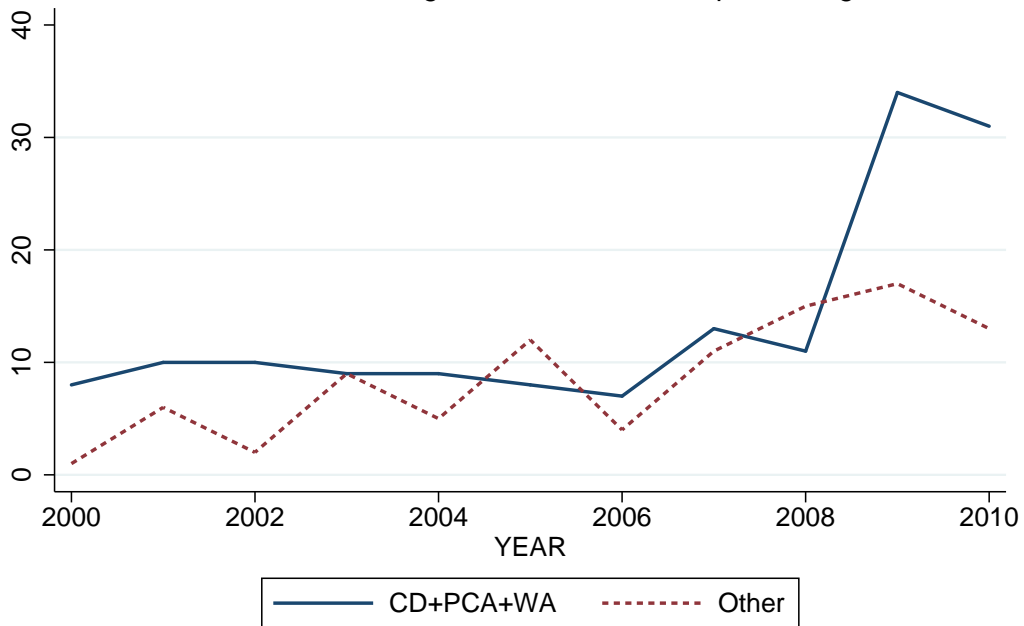


Figure 2

1989-1992). More concretely, we estimate the following model:

$$EA_{it} = \alpha + \beta \mathbf{size}_{it-1} + \gamma \mathbf{x}_{it-1} + \epsilon_{it}, \quad (1)$$

where  $\mathbf{size}$  is a vector (possibly with just one component) of size measures and  $\mathbf{x}$  is a vector of controls, which contains ROA (defined as the ratio of operating income before depreciation scaled by total assets at the beginning of the year) and leverage (defined as the book value of total debt over total assets) For the subsample of banks in SIC codes 6020, 6035, and 6036, we have additional information, so we also use as controls the Tier capital 1 ratio (Tier 1) and the ratio of non-performing loans to total assets (NPA).

Before presenting the estimation results, Panel A of Table 6 presents summary statistics of the different variables and Panel A of Table 7 the table of simple correlations. We obtain all variables from Compustat Annual Fundamentals. When interpreting the summary statistics, it is important to keep in mind that the financial condition of the banks in the sample changes substantially over the sample period and that there is significant attrition (21 banks disappear as independent entities between 2007 and 2010). To shed more light on the distribution of the relevant variables, in panels B and C of tables 6 and 7 we also report summary statistics and correlations for the first (2007) and last (2010) years of the crisis period. As the tables of summary statistics highlight, the banks in the sample are very large and the size distribution, even within this tranche of the size distribution of banks, is highly skewed. Thus, whereas the median assets are \$ 13.3 billion, the top twelve banks have assets larger than \$ 225 billion. Table 7 shows that bank size is positively correlated with both leverage and ROA and negatively correlated at the beginning of the crisis with NPA.

Table 8 shows the results of estimating equation 1 with different size measures. In the first two columns we include size (measured as total assets) linearly and with a quadratic term, and in the third column we measure size as the natural logarithm of total assets. In all three cases, the probability of receiving an enforcement action is decreasing in bank size, although the coefficients are not statistically significant at conventional levels for the quadratic specification (in all cases, standard errors are robust and clustered by firm). Instead of including size parametrically, in the fourth and fifth columns we use five size dummies corresponding to each size quintile (with quintile 5, being the quintile with the largest firms, and quintile 1 being the omitted category). The probability of receiving an enforcement action is significantly lower for the two top quintiles than for the bottom quintile. Further, Wald tests of equality of coefficients reveal that the coefficients for both the top quintile and the fourth quintiles are also significantly larger than that for the second lowest quintile. Columns 5 and 6 present the results for the alternative definition of the enforcement action dummy (which disregards observations of firms that fail in year  $t$  and do not receive an enforcement that year). The coefficient estimates and their statistical significance are virtually unchanged relative to

those obtained with  $EA_{it}$ . Therefore, the results are in line with the unconditional results reported in Table 5: Banks in the top two quintiles are significantly less likely to receive an enforcement action.

## 4 Bank Size, Enforcement Actions, and Bank Failure

The results in the previous section could be explained by larger banks being more diversified or better at risk management, which would allow them to be less risky than smaller banks for given levels of leverage or return on assets. To check whether firms in the sample differ in their riskiness, we also construct a dummy variable, called *Failed*, which indicates whether a firm fails during the period from 2007 to 2010. Since many of the banks in our sample are likely to be systemically important, bank supervisors may intervene to support them if there is risk of insolvency. Therefore, if we defined bank failure narrowly to include only those banks that are formally closed, we would run the risk of underestimating the riskiness of systemic institutions. Instead, we define bank failure in an encompassing way: We consider a bank failed if it is closed, put into receivership with FDIC intervention, or sold to another company while in trouble under the supervision and recommendation of regulators during the period 2007-2010. To construct this variable and identify a firm in the sample as “failed”, for each of the firms in our sample we apply the following procedure (also used by Boyallian and Ruiz-Verdu (2014)). To determine the firms that cease operations we first identify which firms are delisted in the period 2007-2010 by analyzing the series of monthly returns in the CRSP stock database.<sup>11</sup> This process yields a set of 33 delisted firms. However, firms may delist for reasons other than bankruptcy or financial distress. For example, firms may go private, merge, or be acquired for strategic reasons even if they are sound. To determine whether firms were delisted because of financial distress, we take the following steps:

1. We check the FDIC webpage for information about banks that become inactive during the crisis period.<sup>12</sup> However, the FDIC provides information about active and inactive banks but not holding companies (which are our unit of observation). Therefore, we first identify the main banking subsidiary of each holding company from the organization’s structure provided by the FFIEC. The FDIC indicates if a bank is inactive because it was put into receivership, or because it was merged (with or without financial assistance by the regulator). If the FDIC indicates that the firm was closed or there was a merger with financial assistance by the FED or the FDIC we consider the firm failed. We unambiguously identify 9 firms as failed in this step.

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<sup>11</sup>More precisely, we merge the sample with CRSP monthly stock returns and we identify the last available month of returns provided for each PERMCO.

<sup>12</sup><http://www2.fdic.gov/idasp/main.asp>.

**Table 1: Enforcement actions and bank closures in the sample.**

This table shows the cross tabulation of the incidence of enforcement actions and closure. Closure is a categorical variable equal to 1 if the firm has been closed or sold with intervention from the federal regulators in the period 2007-2010 and zero otherwise. Enforcement action is a categorical variable equal to 1 if the supervisors have issued at least 1 enforcement action in the period 2007-2010 and zero otherwise.

	Not Failed	Failed	Total
No enforcement Action	98	15	113
Enforcement Action	11	5	16
Total	109	20	129

2. *Merger discount.* Following the procedure used by Fahlenbrach et al. (2012), we use the SDC Platinum database to identify mergers and check whether firms not classified as failed in the previous steps are acquired with a discount in the crisis period. In particular, we identify three firms acquired with significant discounts (with 1-day, 1-week and 1-month negative premiums of above 30%). We also consider as failed a firm (Mellon) acquired with a one-day small discount of 6% as well as a firm (Countrywide) that is actually acquired with a 1-day positive premium of 40%, but with 1-week and 1-month discounts of 18 and 28%, respectively.
3. For those delisted firms that we do not classify as failed in the previous steps, we search the PROQUEST database using the company name and the following words as keywords: *failed, bankrupt, intervened, closed.* The PROQUEST search identifies one firm as failed (Lehman Brothers).
4. We finally perform the same search on the internet (using standard search engines). This broader internet search indicates that one firm is acquired with substantial regulatory pressure (Merrill Lynch), another one with TARP aid given to the acquiring institution (National City Corp), and another one after a large amount of TARP bailout money is given to the target institution (Provident Bankshares).<sup>13</sup>

We first note that the set of failed banks does not coincide with the set of banks that receive an enforcement action. On the contrary, Table 1 shows that, even though firms that are the subject of an enforcement action during the financial crisis are more likely to close subsequently, only 31.2% of firms subject to an enforcement action fail, whereas 15.31% of firms that are not the subject of an enforcement action fail. Put differently, a large fraction (75%) of the banks that fail during the crisis do not receive a prior enforcement action in the crisis period.

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<sup>13</sup>In the case of Merrill Lynch, there were sustained rumors that the Federal Reserve had pressured Bank of America to carry out the acquisition and Congressional hearings were held in 2009 to determine, among other things, whether the Government or the Federal Reserve had pressured or threatened Bank of America's management to acquire Merrill Lynch (see, e.g., Story and Becker (2009)). National City Corp was acquired after being one of the few qualified banks that was denied TARP help. On the contrary, the acquirer (PNC) received TARP money a few weeks before the purchase of National City was announced. We interpret this as a passive way of regulators to support the acquisition of National City by PNC Financial. Finally, Provident Bankshares Corp received \$151,500,000 from TARP to prop up capital on Nov. 14, 2008. One month later the purchase by M&T was announced.

Table 9 is the analog to Table 5 and reports the incidence of bank failure for different quantiles of bank size. For ease of comparison, we duplicate the numbers of Table 5. The difference between the two tables is stark: Whereas none of the sixteen firms that receive an enforcement action is among the top forty banks, eight of the twenty-one failed firms is in this group of banks and seven out of the top twenty banks fail during the crisis. Therefore, it does not appear as if the largest banks were less likely to fail than smaller banks. The regression results reported in columns 1 to 4 of Table 10 also show that, conditional on predictors of bank failure, such as leverage or ROA, the very large banks were not less likely to fail than smaller banks. In fact, there is no statistically significant relation between size and failure probability in the sample.

However, if enforcement actions have the intended effect of forcing banks to implement policies to reduce their risk, then large banks could be less risky *ex ante*, yet, at the same time, the very fact that they are less likely to receive formal enforcement actions could explain that they do not fail less frequently than smaller banks. To control for this possibility, we also include dummies to capture whether a bank receives an enforcement action the current or past crisis years (EAPC) or in past crisis years (EAP). As we report in columns 5 and 6 of Table 10, the coefficients for these dummies are positive, large, and highly statistically significant. The large, positive sign indicates that our controls have only limited explanatory power in explaining failure, so that the issuance of a formal enforcement action against a firm is highly informative about the firm's weak condition. This information greatly outweighs the possible positive causal effect on a firm's financial condition of the issuance of an enforcement action. In any case, including the dummies for the issuance of a formal enforcement action does not alter the result that size is not associated with the probability of failure.

## 5 Robustness Checks

As explained in 2, the sample of 129 firms consists of bank and financial holding companies that control insured depository institutions. However, commercial banking may not have been the main activity for some of these holding companies, especially the financial holding companies, so that their depository institutions may have received less supervisory attention. At the same time, these holding companies with a large fraction of their activity outside banking include some of the largest and riskiest institutions in the sample (such as, say, Bear Sterns of Lehman Brothers). Therefore, we re-estimate our main specifications restricting the sample to the most bank-centered subset of holding companies, in particular those with SIC codes 6020, 6035, and 6035. Moreover, for this subsample of financial institutions we have additional information, such as the Tier 1 capital ratio and the fraction of non-performing assets, which we can include as controls in our regressions. Table 11 displays the number banks that fail or receive a formal enforcement action by size

group for the subsample of banks with SIC codes 6020, 6035, and 6035. As in the full sample, firms in the top quantiles by size do not receive any enforcement action, whereas they do not seem to be substantially less likely to fail. In Table 12 we report the results of the linear probability model of the probability of receiving an enforcement action and of failing, estimated for the subsample of firms with SIC codes 6020, 6035, and 6035. In these specifications, in addition to Leverage and ROA, we include as regressors the ratio of non-performing assets to total assets (NPA) and the Tier 1 capital ratio (Tier 1). As in the case of the full sample, the probability of receiving an enforcement action is significantly lower for the top quintile (and for the second to top in some specifications) than for the bottom quintile. Further, Wald tests of equality of coefficients reveal that the coefficient for the top quintile is also significantly larger than that for the second lowest quintile. At the same time, the probability of failure is not associated with firm size.

Since the division of banks into size quintiles is, to some extent, arbitrary, for robustness we re-estimate the enforcement action and failure equations using size quartiles instead of quintiles. As we show in Table 13 (both for the whole sample and for the bank subsample), the probability of receiving an enforcement action is significantly lower for the top quartile of firms, whereas the probability of failure is not related to size.

An additional concern with our results is that, as reported by Brunmeier and Willardson (2006), there is a lag of up to a year between an on-site examination and the issuance and disclosure of a formal enforcement action. Therefore, the relevant information in predicting an enforcement action may not be that of the year immediately preceding the enforcement action, but that of two years before the issuance of the enforcement action. Moreover, in some instances, there is no available information for the year prior to firm failure or the issuance of an enforcement action (typically because firms fail to file their quarterly or annual reports in time). To check the robustness of our results we, thus, also estimate our main specification with size and other regressors lagged two periods. As Table 14 shows, the results change little when regressors are lagged two years.

## 6 Conclusion

In this paper, we show that federal bank supervisors appear to practice greater regulatory forbearance with the very large financial institutions in relation to the issuance of formal enforcement actions. These very large banks appear to be “too big to discipline” by means of formal enforcement actions. Our results suggest that the lack of enforcement actions against very large financial institutions during the financial crisis is not due to their being less risky. In contrast to the results we obtain for enforcement actions, very large banks do not have a lower propensity to fail than smaller, yet still large, banks.

There are several possible interpretations of our results. First, it is possible that supervisors’ regulatory

forbearance towards the very large banks is optimal, both ex post (that is, in the event of a situation of financial instability) and ex ante (that is, even taking into account its potential negative effect on large banks' incentives to take on risk). Second, the policy of abstaining from issuing formal enforcement actions against large banks could be optimal ex post, yet not be optimal ex ante, because the perverse incentives to take on risk that it generates outweigh the ex post benefits in times of financial distress. Finally, this policy could be suboptimal even ex post and motivated either by regulators' excessive caution in relation to large institutions or by regulatory capture. Further research is needed to tease out these potential explanations for our results.

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## A Appendix

### A.1 Variable definition

**EA:** Dummy equal to 1 if the firm has received an enforcement action in the year 2007 - 2010

$EA_{it}$ : Dummy equal to 1 if the firm  $i$  has received a solvency related enforcement action in year  $t$ , and zero otherwise.

$EA_{itN}$ : Dummy equal to 1 if the firm  $i$  has received a solvency related enforcement action in year  $t$ , missing if the firm has closed that year and has not received any  $EA_{it}$ , zero in all remaining cases.

**F:** Dummy equal to 1 if the firm has failed in the period 2007 - 2010.

$F_{it}$ : Dummy equal to 1 if the firm  $i$  has failed and closed by intervention of a federal regulator in year  $t$ .

**Leverage:** Book value of leverage ratio computed as the ratio of debt (short term and long term) to total assets ( $Leverage = (dltt + dlc)/at$ ).

**logSize:** Natural Logarithm of total assets as reported in Compustat ( $logSize = \log(at)$ )

**NPA:** Non-performing assets ratio is the ratio of the total amount of non-performing assets scaled by total assets ( $NPA = npat/at$ )

**ROA:** Return on Assets is the ratio of operating income before depreciation scaled by total assets at the beginning of the year. ( $ROA = oibdp/at[_n - 1]$ )

**Size:** Size is the total assets of the firm measured in trillion dollars. ( $Size = at/1000000$ )



**Size\_sq:** Size squared.

**SizeQ5:** Categorical variable with values from 1 to 5 indicating the quintile of Size of the firm in year t.

**SizeQ4:** Categorical variable with values from 1 to 5 indicating the quartile of Size of the firm in year t.

**Tier1:** Tier 1 capital ratio as reported in Compustat annual (capr1).

## A.2 Enforcement Actions

### A.2.1 Examples of Enforcement Actions

#### Example of a C&D text that is classified as risk related: Anchor Bankcorp (2009)

*" [...]NOW, THEREFORE, IT IS ORDERED that:*

*1. The Association and its directors, officers, and employees shall cease and desist from any action (alone or with others) for or toward causing, bringing about, participating in or counseling all unsafe or unsound practices that resulted in the Association operating at a loss, with a large volume of adversely classified assets, and with an inadequate level of capital for the kind and quality of assets held.*

*Capital*

*2. (a) No later than September 30, 2009, the Association shall achieve and maintain: (i) a Tier 1 (Core) Capital Ratio of at least seven percent (7%) and (ii) a Total Risk-Based Capital Ratio of at least eleven percent (11%) after the funding of an adequate Allowance for Loan and Lease Losses (ALLL).*

*(b) No later than December 31, 2009, the Association shall achieve and maintain: (i) a Tier 1 (Core) Capital Ratio of at least eight percent (8%) and (ii) a Total Risk-Based Capital Ratio of at least twelve percent (12%) after the funding of an adequate ALLL.*

*(c) Effective immediately, the Board shall review the Association's capital levels at each regular monthly Board meeting and ensure that the Association continually assesses the sufficiency of the Association's capital levels relative to its risk profile, including but not limited to, such risks as: classified asset levels, non accrual loans, and core earnings. The trends in such risks shall also be reviewed and monitored by the Board. The Board's review of capital adequacy and any actions to be taken to ensure that adequate capital levels are maintained shall be fully detailed in the Board meeting minutes.[...]*

#### Example of a C&D text that is NOT considered Risk related: WAMU (2007)

*"[...] NOW, THEREFORE, IT IS ORDERED THAT:  
I. ORDER TO CEASE AND DESIST*

*A. The Institution and its directors, officers, employees, and agents shall cease and desist from any action (alone or with another or others) for or toward causing, bringing about, participating in, counseling, or aiding and abetting any violation of:*

*(1) The Currency and Foreign Transactions Reporting Act (the Bank Secrecy Act or BSA), 31 U.S.C. 5311 et seq., and the related BSA regulations issued by the United States Department of the Treasury, 31 C.F.R. Part 103, and the OTS, 12 C.F.R. 563.177; and*

*(2) The OTS regulations governing suspicious activity reports (SARs) set forth in 12 C.F.R. 563.180 (the SAR Regulation).[...]*

When the C&D section is not explicitly related to risk or capital issues we complement the reading of the C&D section with a search of four key words: capital, liquidity, solvency and risk. If, the reading of the section *I* and the search of key words gives no results, then the action is *not* classified as a Risk related action.

**Example of a WA text that is considered Risk related: Flagstar2010a**

*"[...] WHEREAS, based on its August 3, 2009 examination of the Holding Company, the OTS finds that the Holding Company has engaged in unsafe or unsound practices in conducting its consolidated operations;*

*Capital Plan*

*1. (a) Within forty-five (45) days, the Holding Company shall submit to the Regional Director an acceptable written plan for enhancing the consolidated capital and earnings of the Holding Company (Capital Plan). The Capital Plan shall cover the period beginning with the quarter starting January 1, 2010 through the quarter ending December 31, 2011.*

*At a minimum, the Capital Plan shall include:*

*(i) establishment of a minimum tangible capital ratio of tangible equity capital to total tangible assets commensurate with the Holding Company's consolidated risk profile;*

*(ii) specific plans to ensure conformance with the Business Plan of the Holding Company's wholly-owned savings association subsidiary, Flagstar Bank, FSB, Troy, Michigan, OTS Docket No. 08412 (Association), including capital levels projected by the Association;*

*(iii) operating strategies to achieve net income levels that will result in profitability and adequate debt service throughout the term of the Capital Plan; [...]*

Another example is the cases in which the WA or CO is issued against the holding company claiming it as source of strength for the subsidiary and followed by a Capital plan: Cascade 2009

*"[...]WHEREAS, it is the common goal of Bancorp, the Federal Reserve Bank of San Francisco (the Reserve Bank), and the Director of the State of Oregon's Department of Consumer and Business Services acting through the Administrator of the Division of Finance and Corporate Securities (the DFCS) to maintain the financial soundness of Bancorp so that Bancorp may serve as a source of strength to the Bank; [...]*

*"[...] Capital Plan*

*3. Within 60 days of this Agreement, Bancorp shall submit to the Reserve Bank an acceptable written plan to maintain sufficient capital at Bancorp, on a consolidated basis, and at the Bank, as a separate legal entity on a stand-alone basis. The plan shall, at a minimum, address, consider, and include:*

*(a) The consolidated organization and the Bank's current and future capital requirements, including compliance with the Capital Adequacy Guidelines for Bank Holding Companies: Risk-Based Measure and Tier 1 Leverage Measure, Appendices A and D of [Page Break] Regulation Y of the Board of Governors (12 C.F.R. Part 225, App. A and D), and the applicable capital adequacy guidelines for the Bank issued by the Bank's federal regulator;*

*(b) the adequacy of the Bank's capital, taking into account the volume of classified credits, concentrations of credit, allowance for loan and lease losses ("ALLL"), current and projected asset growth, and projected retained earnings;*

*(c) the source and timing of additional necessary funds to fulfill the consolidated organization's and the Bank's future capital requirements;*

(d) supervisory requests for additional capital at the Bank or the requirements of any supervisory action imposed on the Bank by its federal or state regulator; and

(e) the requirements of section 225.4(a) of Regulation Y of the Board of Governors (12 C.F.R. 225.4(a)) that Bancorp serve as a source of strength to the Bank.

4. Bancorp shall notify the Reserve Bank, in writing, no more than 30 days after the end of any quarter in which any of the consolidated organization's or the Bank's capital ratios (total risk-based, Tier 1, or leverage) fall below the approved plan's minimum ratios. Together with the notification, Bancorp shall submit an acceptable capital plan that details the steps Bancorp will take to increase the consolidated organization's or the Bank's capital ratios to or above the approved plans minimums.[...]

#### **Example of a WA text that is NOT considered Risk related: Bank of America 2010**

*"[...]WHEREAS, the U.S. Department of Justice, Antitrust Division, the U.S. Securities and Exchange Commission, the Office of the Comptroller of the Currency, the Internal Revenue Service, and the Federal Reserve Bank of Richmond (the "Reserve Bank") (collectively, "the Agencies") conducted investigations and examinations concerning various types of anti-competitive activities at Bank of America by certain employees in conjunction with the sale of certain derivative financial products to municipalities and other non-profit organizations variously between the years 1998 and 2003;[...]"*

Usually, this cases have no results in a search of four key words: capital, liquidity, solvency and risk.

#### **Civil Money Penalties Example : Northern Trust (2008)**

*"[...]WHEREAS, the Comptroller of the Currency of the United States of America ("Comptroller") intends to initiate a civil money penalty proceeding against Northern Trust, N.A., Miami, Florida ("Bank"), pursuant to 42 U.S.C. 4012a(f), based on the Bank's pattern or practice of making, increasing, extending or renewing loans secured by property located in a special flood hazard area for which flood insurance is available under the National Flood Insurance Act, without requiring the property securing the loans to be covered by the requisite flood insurance.[...]"*

In all cases, a word search for capital, liquidity, solvency and risk found no matches.

### **A.2.2 Cases**

#### **Civil Money Penalties**

We have disregarded every CMP case on the grounds that all the matches were related to compliance issues.

#### **Written agreements, cease and desist orders and prompt corrective actions**

Prompt corrective actions are related to capital requirements by definition of the action itself, so all cases were included. For Cease and Desist Orders and Written Agreements we show in the following tables the cases included and excluded, depending of whether they were related to risk, capital or solvency.

**Table 2:** List of firms in the sample that have received a Civil Money Penalty during the crisis period (2007-2010). All cases were related to compliance and not to solvency, liquidity, risk or capital. Column *Cause* gives details about the compliance issues.

Civil Money Penalty	
Company	Cause
AMEX (2009)	Violations of section 5 of the Federal Trade Commission Act, 15 U.S.C. 45(a)(1) (Section 5).
AMEX (2009)	Violations of section 5 of the Federal Trade Commission Act, 15 U.S.C. 45(a)(1) (Section 5).
Associated (2007)	Flood Act Insurance.
Banco Popular (2008)	No details.
Capital One	No details.
Cascade (2008)	Flood insurance compliance.
Cathay (2008)	Flood insurance compliance.
City National (2008)	Flood insurance compliance.
Compass	Flood insurance compliance.
East West (2007)	Flood insurance compliance.
First Horizon (2007)	Flood insurance compliance.
First Tennessee (2009)	Resulting in violations of appraisal regulations under 12 C.F.R. Part 34.
Glacier (Citizens) (2010)	Flood insurance compliance.
Hanmi (2007)	Flood insurance compliance.
Keybank (Keycorp) (2007)	Flood insurance compliance.
Northern Trust	Flood insurance compliance.
Regions (2009)	Flood insurance compliance.
State Street (2010)	Flood insurance compliance.
Sterling (2009)	Flood insurance compliance.
Trustco (2010)	Flood insurance compliance.
Umpqua (2008)	Flood insurance compliance.
United (2008)	Flood insurance compliance.
United (2009)	Flood insurance compliance.
Wachovia (2008)	Unfair commercial behavior.
Wachovia (2010)	Bank secrecy and money laundering compliance.
WAMU	Flood act compliance.
Webster (2007)	Flood insurance compliance.
Wells Fargo (2008)	No details.
Wells Fargo (2009a)	Flood insurance compliance.
Wells Fargo (2009b)	Flood insurance compliance.

**Table 3:** List of firms in the sample that have received a Cease and Desist order, a Written Agreement or a Prompt Corrective Action in the crisis period (2007-2010) that were classified as being related to solvency, liquidity, risk or capital and used in our study.

<b>Actions related to risk, solvency or capital.</b>		
<b>Company</b>	<b>CD</b>	<b>WA and CMP</b>
Anchor (2009)	1	1
Cascade (2009)	1	1
Central Pacific (2010)		1
CIT (2009)	1	1
Citizens (Glacier)(2008)	1	
Corus (2009)	1	1
Downey (2008)	1	
First Bancorp (2010)		1
First Midwest (2009)	1	
Firstfed (2009)	1	
Flagstar (2010)		1
Franklin (2008)	1	
Hanmi (2009)		1
Irwin (2008)	1	1
Prosperity (2010)		1
Sterling (2009)	1	1
United Bank (2010)	1	

**Table 4:** List of firms in the sample that have received a Cease and Desist order, or a Written Agreement in the crisis period (2007-2010) that were classified as not related to solvency, liquidity, risk or capital and excluded in our study.

<b>Excluded enforcement actions</b>		
<b>Company</b>	<b>CD</b>	<b>WA</b>
Amex (2009)	1	
Amex (2009b)	1	
Brookline (2009)	1	
SLM (2008)	1	
TCF (2010)	1	
Wachovia (2010)	1	
WAMU (2007)	1	
Washington Federal	1	
American Express (2010)		1
Bank of America (2010) OCC		1
Bank of America (2010)		1
Capital One (2010)		1
Wachovia (2008a)		1
Wachovia (2008b)		1

### A.3 Tables

**Table 5: Distribution of EAs** Distribution by size bins of firms receiving and not receiving enforcement action during the crisis period (2007- 2010). Size is measured as total assets at the end of year 2006. Bin 1 contains the smallest firms in the sample and bin 13 the largest.

Bin	Total Firms	Number of firms	
		EA=0	EA=1
1	10	8	2
2	10	10	0
3	10	6	4
4	10	7	3
5	10	8	2
6	10	8	2
7	10	10	0
8	10	7	3
9	10	10	0
10	10	10	0
11	10	10	0
12	10	10	0
13	9	9	0
Total	129	113	16

**Table 6: Firm characteristics: summary statistics.** Size is the firm’s total assets measured in trillion dollars. Leverage is the book-value ratio of debt to assets. NPA is the ratio of non performing assets scaled by total assets. ROA is the ratio of operating income before depreciation scaled by total assets lagged one year. Tier 1 is the capital asset ratio for banks.  $EA_{it}$  is a dummy equal to 1 in the year the firm receives an enforcement action related to capital or solvency.  $F_{it}$  is a dummy equal to 1 if the firm is closed by regulatory intervention in year  $t$ . Panel A displays summary statistics for the entire sample period (2007-2010). Panel B displays characteristics for the first crisis year (2007) and Panel C displays summary statistics for the surviving firms in 2010.

Panel A: Years 2007 - 2010						
	Count	Mean	S.D.	p10	p50	p90
Size	421	0.13	0.37	0	0.01	0.2
Leverage	416	0.18	0.12	0.05	0.16	0.33
ROA	441	0.02	0.02	-0.01	0.02	0.03
NPA	375	0.02	0.03	0	0.01	0.05
Tier1	391	10.96	3.27	7.06	10.76	14.4

Panel B: Year 2007						
	Count	Mean	S.D.	p10	p50	p90
Size	119	0.13	0.34	0	0.01	0.24
Leverage	118	0.22	0.14	0.05	0.19	0.41
ROA	121	0.03	0.01	0.01	0.02	0.04
NPA	104	0.01	0.01	0	0.01	0.02
Tier1	106	9.73	2.61	6.94	9.45	12.17

Panel C: Year 2010						
	Count	Mean	S.D.	p10	p50	p90
Size	97	0.13	0.4	0	0.01	0.2
Leverage	96	0.15	0.11	0.04	0.12	0.29
ROA	99	0.01	0.02	-0.01	0.02	0.03
NPA	87	0.03	0.02	0	0.02	0.06
Tier1	89	12.4	3.64	7.95	12.44	17.01

**Table 7: Firm characteristics: correlation table.** Size is the firm's total assets measured in trillion dollars. Leverage is the book-value ratio of debt to assets. NPA is the ratio of non performing assets scaled by total assets. ROA is the ratio of operating income before depreciation scaled by total assets lagged one year. Tier 1 is the capital asset ratio for banks.  $EA_{it}$  is a dummy equal to 1 in the year the firm receives an enforcement action related to capital or solvency.  $F_{it}$  is a dummy equal to 1 if the firm is closed by regulatory intervention during year  $t$ . Panel A displays pairwise correlation coefficients for the period (2007-2010). Panel B displays pairwise correlation coefficients for the first crisis year (2007) and Panel C displays pairwise correlation coefficients for the surviving firms in 2010.

Panel A: Years 2007 - 2010						
	Size	Leverage	ROA	NPA	Tier 1	Fit
Size	1					
Leverage	0.4283	1				
ROA	0.1418	0.146	1			
NPA	-0.0657	-0.0577	-0.7371	1		
Tier1	-0.1062	-0.332	0.1943	-0.1739	1	
Fit	0.0435	0.2087	-0.1994	0.3602	-0.1978	1
EAIT	-0.0634	0.0158	-0.2516	0.3494	-0.0753	0.1908

Panel B: Year 2007						
	Size	Leverage	ROA	NPA	Tier 1	Fit
Size	1					
Leverage	0.4562	1				
ROA	0.3048	0.2895	1			
NPA	-0.0748	0.1741	-0.2466	1		
Tier1	-0.2167	-0.3943	0.2595	-0.1003	1	
Fit	-0.0214	-0.0318	0.2484	-0.1097	0.1085	1

Panel C: Year 2010						
	Size	Leverage	ROA	NPA	Tier 1	Fit
Size	1					
Leverage	0.4621	1				
ROA	0.1255	0.0788	1			
NPA	-0.1118	0.0301	-0.8086	1		
Tier1	-0.0642	-0.2327	0.4356	-0.508	1	
Fit	-0.0444	-0.0591	-0.4985	0.5122	-0.2482	1
EAIT	-0.0693	0.0495	-0.1058	0.2057	-0.0962	-0.0331



**Table 8: Firm Size and the Probability of Receiving an Enforcement Action: Regression Results.**  $EA_{it}$  is a dummy variable equal to 1 if the firm  $i$  has received an enforcement action in year  $t$  and zero otherwise.  $EA_{it}N$  is a dummy variable equal to 1 if the firm  $i$  has received an enforcement action in year  $t$ , missing if the firm has failed in year  $t$  but has not received an enforcement action that year, and zero otherwise. Size is the firm's total assets measured in trillion dollars.  $\log\text{Size}$  is the natural logarithm of total assets. Leverage is the book-value ratio of debt to assets. ROA is the ratio of operating income before depreciation scaled by total assets lagged one year. Q2, Q3, Q4, Q5 are dummy variables for quintiles of size 2, 3, 4, and 5 respectively by year. All independent variables are lagged one period. All standard errors are clustered at the firm level. \*, \*\* and \*\*\* represent significance levels at 10%, 5% and 1% respectively. Robust standard errors in parentheses.

	(1) $EA_{it}$	(2) $EA_{it}$	(3) $EA_{it}$	(4) $EA_{it}$	(5) $EA_{it}N$	(6) $EA_{it}N$
L.Size	-0.0336*** (0.013)					
L.logSize		-0.0159*** (0.005)				
L.Leverage	0.1162* (0.067)	0.1823 ** (0.076)	0.1569 ** (0.064)	0.1470 ** (0.062)	0.1747 ** (0.074)	0.1624 ** (0.072)
L.ROA	-2.4630*** (0.757)	-2.3551*** (0.747)	-2.3753*** (0.722)	-2.3341*** (0.857)	-2.9951*** (0.817)	-3.0734*** (0.990)
L.Q2			0.0402 (0.034)	0.0407 (0.034)	0.0381 (0.034)	0.0385 (0.034)
L.Q3			-0.0325 (0.026)	-0.0318 (0.026)	-0.0340 (0.026)	-0.0332 (0.026)
L.Q4			-0.0542 ** (0.025)	-0.0532 ** (0.025)	-0.0619 ** (0.026)	-0.0609 ** (0.026)
L.Q5			-0.0506* (0.026)	-0.0490* (0.026)	-0.0519* (0.027)	-0.0481* (0.027)
Year FE	No	No	No	Yes	No	Yes
N	437	437	437	437	421	421
R-sq	0.069	0.081	0.099	0.102	0.117	0.121

**Table 9: Distribution of Failed and EA in the Full Sample.** Size is measured as total assets at the end of year 2006. Panel A displays bins of 10 firms each, being firms in bin 1 the smallest ones and bin 13 the largest in the sample.

Bin	Firms	Panel A		Panel B	
		Failed	Failed %	EA	EA %
1	10	0	0%	2	20%
2	10	1	10%	0	0%
3	10	0	0%	4	40%
4	10	3	30%	3	30%
5	10	0	0%	2	20%
6	10	3	30%	2	20%
7	10	1	10%	0	0%
8	10	2	20%	3	30%
9	10	2	20%	0	0%
10	10	1	10%	0	0%
11	10	0	0%	0	0%
12	10	4	40%	0	0%
13	9	3	33%	0	0%
Total	129	20	16%	16	12%

**Table 10: Firm Size and Failure: Regression Results.**  $F_{it}$  is a dummy variable equal to 1 if the firm  $i$  has been closed by means regulators intervention, and zero otherwise. Size is the firm's total assets measured in trillion dollars. logSize is the natural logarithm of total assets. Leverage is the book-value ratio of debt to assets. ROA is the ratio of operating income before depreciation scaled by total assets lagged one year. Q2, Q3, Q4, Q5 are dummy variables for quintiles of size 2, 3, 4, and 5 respectively by year. EAP is a dummy equal to 1 is the firm has received an enforcement action in the years previous to the year it is closed, and EAPC is a dummy equal to 1 if the firm has received an enforcement action either the years previous or the current year the firm is closed. All independent variables are lagged one period. All standard errors are clustered at the firm level. \*, \*\* and \*\*\* represent significance levels at 10%, 5% and 1% respectively. Robust standard errors in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
L.Size	-0.0207 (0.030)					
L.logSize		0.0024 (0.007)				
L.Leverage	0.4189*** (0.129)	0.3797*** (0.130)	0.3751*** (0.126)	0.3178 ** (0.125)	0.2951 ** (0.124)	0.2695 ** (0.110)
L.ROA	-2.5000 ** (1.040)	-2.5538 ** (1.039)	-2.6118 ** (1.066)	-3.3942*** (1.259)	-3.0353 ** (1.286)	-1.5868 (1.194)
L.Q2			0.0196 (0.022)	0.0176 (0.022)	0.0119 (0.022)	-0.0113 (0.018)
L.Q3			0.0129 (0.024)	0.0147 (0.023)	0.0163 (0.023)	0.0098 (0.020)
L.Q4			-0.0149 (0.030)	-0.0133 (0.029)	-0.0100 (0.029)	-0.0018 (0.028)
L.Q5			0.0273 (0.029)	0.0435 (0.030)	0.0444 (0.030)	0.0366 (0.028)
EAP					0.7254*** (0.091)	
EAPC						0.8730*** (0.064)
Year FE	No	No	No	Yes	Yes	Yes
N	437	437	437	437	437	437
R-sq	0.099	0.098	0.102	0.137	0.163	0.307

**Table 11: Distribution of EA and Failure by Size for the Subsample of Commercial Banks.** The table reports the number and percentage of firms with SIC codes 6020, 6035, or 6036 that have received and enforcement action or failed during the crisis period (2007- 2010) by size. Size is measured as total assets at the end of year 2006. Bin 1 contains the smallest firms and bin 11 the largest in the sample.

Bin	Firms	Panel A		Panel B	
		Failed	Failed %	EA	EA %
1	11	0	0%	2	18%
2	10	1	10%	1	10%
3	11	1	9%	5	45%
4	10	2	20%	2	20%
5	10	1	10%	2	20%
6	11	2	18%	1	9%
7	10	2	20%	0	0%
8	10	2	20%	3	30%
9	11	1	9%	0	0%
10	10	0	0%	0	0%
11	10	3	30%	0	0%
Total	114	15	13%	16	14%

**Table 12: Firm Size, Enforcement Actions and Failure: Regression Results for the Subsample of Commercial Banks.** Linear regression for enforcement actions (Panel A) and failure (Panel B) for the subsample of firms in SIC codes 6020, 6035 and 6036.  $EA_{it}$  is a dummy variable equal to 1 if the firm  $i$  has received an enforcement action in year  $t$ , missing if the firm has failed in year  $t$  but has not received an enforcement action that year, and zero otherwise. Size is the firm's total assets measured in trillion dollars.  $F_{it}$  is a dummy variable equal to 1 if the firm  $i$  has been closed by means regulators intervention in year  $t$ , and zero otherwise. Size is the firm's total assets measured in trillion dollars. Leverage is the book-value ratio of debt to assets. ROA is the ratio of operating income before depreciation scaled by total assets lagged one year. NPA is the ratio of non-performing assets to total assets and Tier 1 is the Tier 1 capital ratio. Q2, Q3, Q4, Q5 are dummy variables for quintiles of size 2, 3, 4, and 5 respectively by year. EAP is a dummy variable equal to 1 if the firm has received an enforcement action in the years previous to the year it is closed, and EAPC is a dummy equal to 1 if the firm has received an enforcement action either the years previous or the current year the firm is closed. All independent variables are lagged one period. All standard errors are clustered at the firm level. \*, \*\*, and \*\*\* represent significance levels at 10%, 5% and 1% respectively. Robust standard errors in parentheses.

	Panel A				Panel B			
	(1) $EA_{it}$	(2) $EA_{it}$	(3) $EA_{it}N$	(4) $EA_{it}N$	(1) $F_{it}$	(2) $F_{it}$	(3) $F_{it}$	(4) $F_{it}$
L.Leverage	0.2714 ** (0.130)	0.2416* (0.129)	0.2744 ** (0.135)	0.2387* (0.132)	0.1739 (0.132)	0.0938 (0.129)	0.0891 (0.130)	0.0588 (0.109)
L.ROA	0.2019 (1.128)	0.1263 (1.201)	-0.1281 (1.236)	-0.4401 (1.357)	-1.1006 (1.695)	-2.1972 (1.709)	-1.4914 (1.695)	-1.3176 (1.456)
L.NPA	2.6983 ** (1.159)	2.7598 ** (1.156)	3.2891*** (0.948)	3.3663*** (0.962)	2.0236 ** (0.923)	2.2223*** (0.793)	2.5136*** (0.767)	1.0213 (0.895)
L.Tier1	0.0001 (0.003)	0.0009 (0.003)	-0.0018 (0.003)	-0.0002 (0.003)	-0.0072 ** (0.004)	-0.0018 (0.003)	-0.0003 (0.003)	-0.0017 (0.002)
L.Q2	0.0517 (0.037)	0.0531 (0.037)	0.0403 (0.035)	0.0415 (0.035)	0.0216 (0.023)	0.0223 (0.022)	0.0165 (0.021)	-0.0066 (0.018)
L.Q3	-0.0026 (0.030)	-0.0012 (0.030)	-0.0103 (0.029)	-0.0090 (0.028)	0.0177 (0.024)	0.0203 (0.022)	0.0237 (0.022)	0.0110 (0.018)
L.Q4	-0.0473 (0.029)	-0.0434 (0.028)	-0.0612 ** (0.027)	-0.0567 ** (0.027)	-0.0011 (0.030)	0.0089 (0.029)	0.0146 (0.029)	0.0158 (0.027)
L.Q5	-0.0469* (0.025)	-0.0427* (0.025)	-0.0554 ** (0.025)	-0.0487* (0.025)	0.0127 (0.025)	0.0306 (0.026)	0.0340 (0.025)	0.0261 (0.023)
							0.7835*** (0.107)	
Year FE	No	Yes	No	Yes	No	Yes	Yes	Yes
N	387	387	376	376	387	387	387	387
R-sq	0.161	0.166	0.201	0.207	0.164	0.196	0.236	0.372
								0.8115*** (0.087)

**Table 13: Firm Size, Enforcement Actions and Failure: Size Quartiles.**  $E A_{it}$  is a dummy variable equal to 1 if the firm  $i$  has received an enforcement action in year  $t$  and zero otherwise.  $F_{it}$  is a dummy variable equal to 1 if the firm  $i$  has been closed by means regulators intervention in year  $t$ , and zero otherwise. Size is the firm's total assets measured in trillion dollars. Leverage is the book-value ratio of debt to assets. ROA is the ratio of operating income before depreciation scaled by total assets lagged one year. NPA is the ratio of non-performing assets to total assets and Tier 1 is the Tier 1 capital ratio. Q2, Q3, Q4, are dummy variables for quartiles of size 2, 3 and 4, respectively by year. EAP is a dummy equal to 1 if the firm has received an enforcement action either the years previous to the year it is closed, and EAPC is a dummy equal to 1 if the firm has received an enforcement action either the years previous or the current year the firm is closed. All independent variables are lagged one period. Banks are firms with sic 6020, 6035 and 6036. All standard errors are clustered at the firm level. \*, \*\* and \*\*\* represent significance levels at 10%, 5% and 1% respectively. Robust standard errors in parentheses.

Table 9A - Quartiles per year

	All sample							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$E A_{it}$	$E A_{it}$	$F_{it}$	$F_{it}$	$E A_{it}$	$E A_{it}$	$F_{it}$	$F_{it}$
L.Leverage	0.1540 ** (0.067)	0.1438 ** (0.065)	0.3860*** (0.127)	0.3351*** (0.125)	0.2790 ** (0.130)	0.2497* (0.128)	0.1645 (0.135)	0.0859 (0.132)
L.ROA	-2.4188*** (0.755)	-2.3960*** (0.887)	-2.5407 ** (1.063)	-3.2573 ** (1.245)	0.3245 (1.102)	0.2318 (1.190)	-1.0695 (1.647)	-2.1760 (1.637)
L.NPA					2.8169 ** (1.143)	2.8775 ** (1.141)	2.0479 ** (0.907)	2.2399*** (0.778)
L.Tier1					0.0001 (0.003)	0.0009 (0.003)	-0.0072 * * (0.004)	-0.0018 (0.003)
L.Q2	-0.0001 (0.030)	0.0001 (0.030)	0.0090 (0.023)	0.0086 (0.023)	0.0257 (0.034)	0.0264 (0.034)	0.0213 (0.022)	0.0212 (0.021)
L.Q3	-0.0427* (0.025)	-0.0419 (0.025)	0.0046 (0.029)	0.0078 (0.029)	-0.0287 (0.028)	-0.0266 (0.027)	0.0093 (0.025)	0.0159 (0.024)
L.Q4	-0.0564 * * (0.022)	-0.0551 * * (0.023)	0.0104 (0.024)	0.0222 (0.025)	-0.0576 * * (0.025)	-0.0533 * * (0.025)	0.0129 (0.028)	0.0291 (0.029)
Year FE	No	Yes	No	Yes	No	Yes	No	Yes
N	437	437	437	437	387	387	387	387
R-sq	0.081	0.085	0.098	0.131	0.151	0.157	0.163	0.196

**Table 14: Firm Size, Enforcement Actions and Failure: Regressors Lagged Two Periods.**

Linear regression for enforcement actions and failure.  $EA_{it}$  is a dummy variable equal to 1 if the firm  $i$  has received an enforcement action in year  $t$  and zero otherwise.  $F_{it}$  is a dummy variable equal to 1 if the firm  $i$  has been closed by means regulators intervention, and zero otherwise. Size is the firm's total assets measured in trillion dollars. Leverage is the book-value ratio of debt to assets. ROA is the ratio of operating income before depreciation scaled by total assets lagged one year. NPA is the ratio of non-performing assets to total assets and Tier 1 is the Tier 1 capital ratio. Q2, Q3, Q4, Q5 are dummy variables for quintiles of size 2, 3, 4 and 5 respectively by year. EAP is a dummy equal to 1 if the firm has received an enforcement action in the years previous to the year it is closed, and EAPC is a dummy equal to 1 if the firm has received an enforcement action either the years previous or the current year the firm is closed. All independent variables are lagged one period. Banks are firms with sic 6020, 6035 and 6036. All standard errors are clustered at the firm level. \*, \*\* and \*\*\* represent significance levels at 10%, 5% and 1% respectively. Robust standard errors in parentheses.

	All sample		Banks	
	(1) $EA_{it}$	(2) $F_{it}$	(1) $EA_{it}$	(2) $F_{it}$
L2.Leverage	0.2200 (0.135)	0.2965* (0.168)	0.1664 (0.135)	0.2907 (0.177)
L2.ROA	0.7903 (1.033)	0.5414 (1.594)	0.6389 (1.048)	0.6730 (1.590)
L2.NPA	3.8427* (2.224)	5.3268 ** (2.483)	3.7514* (2.222)	5.2106 ** (2.513)
L2.Tier1	-0.0028 (0.004)	0.0023 (0.004)	-0.0026 (0.004)	0.0021 (0.004)
L2.Q2	0.0551 (0.037)	0.0362 (0.025)	0.0585* (0.035)	0.0247 (0.024)
L2.Q3	-0.0280 (0.025)	0.0308 (0.024)	-0.0128 (0.030)	0.0257 (0.022)
L2.Q4	-0.0572* (0.030)	-0.0114 (0.035)	-0.0156 (0.033)	0.0184 (0.042)
L2.Q5	-0.0589 ** (0.027)	0.0373 (0.037)	-0.0517* (0.027)	0.0119 (0.031)
EA				
EAP				
Year FE	Yes	Yes	Yes	Yes
Observations	380	380	380	380
$R^2$	0.091	0.096	0.082	0.088