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**How Do Joint Supervisors Examine Financial Institutions? The
Case of State Banks**

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The Case of State Banks

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Abstract

This paper studies what determines whether federal and state supervisors examine state banks independently or together. The results suggest that supervisors coordinate examinations in order to support states with lower budgets and capabilities and more banks to supervise. I find that states with larger budgets examine more banks independently, that they accommodate changes in the number of banks mostly through the number of examinations with a federal supervisor and that, when examining banks together, state banking departments that have earned quality accreditation are more likely to write conclusion reports separately from federal supervisors. The results also indicate that regulation impacts supervision by changing the characteristics of banks. Independent examinations decrease with branch deregulation, which is consistent with the facts that this reform consolidated banks within fewer independent firms and that state and federal supervisors are more likely to examine large and complex institutions together.

JEL Classification: G21, G28.

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1 Introduction

Banks in the United States are supervised by multiple regulators. Three federal regulators together with state banking departments supervise commercial banks and their powers and responsibilities often overlap. This fragmented regulatory structure has often been blamed for duplicating compliance costs, causing ineffective communication of information and motivating regulators to supervise and regulate institutions leniently.

Supervisors, however, alleviate these inefficiencies by coordinating bank examinations. Federal supervisors are required to coordinate examinations with each other and with state banking departments to minimize the disruptive effects of multiple examinations on the operations of depository institutions.¹ Banks themselves prefer that supervisors cooperate too. In a recent survey, financial institutions in the United States recommended that, to reduce compliance costs, regulators increase collaboration and consistency among themselves and reduce the number of examinations where different regulators examine the same issue (Deloitte Center for Banking Solutions, 2007).

Although most banks are jointly supervised, little is known about what determines how their supervisors examine them. In this paper, I study the characteristics of states and their respective banking departments that determine how state banking departments and federal regulators examine state-chartered banks in the United States. I use variation in characteristics across states and over time to study how they affect the examinations of banks jointly supervised with the Federal Reserve (Fed) and the Federal Deposit Insurance Corporation (FDIC). Such a setting is convenient for two reasons. First, by focusing on variation within the United States, I eliminate any potential impact of unobserved country characteristics – even time varying – that can affect examinations. Second, since the federal regulators are the same throughout the country, I can also control for unobservable characteristics that determine how they examine banks, and therefore I isolate the effects of states' and banking departments' characteristics on examinations.

¹ See the Riegle Community Development and Regulatory Improvement Act of 1994.

I investigate how these characteristics determine the number and the types of examinations conducted. State banking departments examine banks independently, concurrently and jointly. An independent examination is conducted by a regulator alone. In a concurrent examination a state banking department and a federal regulator examine an institution together but issue separate reports, while in a joint investigation they collaborate on the same report.

The results indicate that state and federal supervisors determine how they examine banks in order to support states with lower budgets and capabilities and more banks to supervise: States with larger budgets examine more banks independently. For instance, in 1992 all the states that conducted less than 40 percent of their examinations independently allocated less than US\$ 1 million to commercial bank supervision, while every state with more than US\$ 5 million allocated to it performed at least 60 percent of examinations independently. Regarding the number of banks, joint or concurrent examinations are found to increase by around 0.88 percent for each one-percent increase in the number of state banks, while independent examinations increase by at most 0.58 percent for the same increase in the number of banks. Also, the fraction of joint examinations in the total examinations with federal regulators decreases by at least 14 percent when states are accredited by the Conference of State Bank Supervisors.

Examinations are also determined by regulation and banks' characteristics in an intuitive way: joint or concurrent examinations increase with bank size, while independent examinations decrease with branching deregulation, which is consistent with the fact that deregulation consolidated banks within fewer independent firms and that state and federal supervisors tend to examine large and complex institutions together instead of independently. These results indicate that regulation affects examinations both by determining banks' characteristics and by determining regulators' responsibilities over them, and therefore they have strong implications for regulatory policy.

Bank examinations have been intensely studied in the literature, but the questions that researchers have addressed so far differ from those I raise here. This literature has mostly evaluated the information contained in bank examinations (Flannery, 1983; Hirschhorn, 1987; Berger and

Davies, 1998; Cole and Gunther, 1998; Hirtle and Lopez, 1999; Berger, Davies and Flannery, 2000; Allen, Jagtiani and Moser, 2001; DeYoung, Flannery, Lang and Sorescu, 2001) and, more recently, the impact of disclosing such information on supervisors' effectiveness (Feldman, Jagtiani and Schmidt, 2003) and the impact of exams on institutions (Gunther and Moore, 2003). I differ from these authors by analyzing how banks are examined as opposed to evaluating the effects of examinations or of the information obtained through them.

This paper therefore contributes to the empirical literature on what determines how financial institutions are supervised.² This literature has analyzed how the official power granted to bank supervisors is determined by countries' political systems (Barth, Caprio and Levine, 2006), how politics influences supervisors' decisions to intervene in problem banks (Brown and Dinç, 2005; Imai, 2009), and how the skills and size of supervisory staffs vary with countries' and other regulators' characteristics (Goodhart, Schoemaker and Dasgupta, 2002). My paper contributes to this literature by studying examinations, which is the main tool of supervision and perhaps the most understudied.

This paper is also the first empirical analysis of what determines how supervisors coordinate their work. Recent theoretical papers have studied how supervisors' incentives to monitor, share information and close banks vary with the allocation of powers. They monitor banks more and share more information depending on how the responsibilities of lender of last resort, deposit insurance and supervision are distributed among them (Kahn and Santos, 2005). National supervisors also exchange information or close jointly supervised multinational banks depending on the allocation of the power

² As opposed to what determines the characteristics of bank supervision, the empirical literature has mostly studied its effects. For instance, evidence has been presented that requiring banks to disclose information to the public and favoring private-sector control of banks succeed relative to traditional supervisory policies, such as direct intervention, in fostering the bank industry and in helping firms to raise external finance (Barth, Caprio and Levine, 2004, 2006; Beck, Demirgüç-Kunt and Levine, 2006). The literature has also found evidence that changing supervisors' obligations, powers and incentives impacts bank recovery and how insolvency is resolved (Kane, Bennett and Oshinsky, 2008).

to close institutions (Holthausen and Rønne, 2005). This paper, on the other hand, analyzes coordination among supervisors empirically and focuses on how they examine banks.³

This paper is organized as follows. Section 2 presents a background on bank examinations. Section 3 describes the data. Section 4 presents the empirical strategy. Section 5 presents the results on what determines the number and distribution of examinations. Section 6 concludes.

2 Background on Bank Examinations

In this paper I study how supervisors examine two categories of state-chartered banks: commercial and savings banks. Commercial banks make up the large majority and account for most of the assets of these banks. For instance, in 2000 there were 6,153 state-chartered commercial banks and only 336 savings banks, holding US\$ 2,371 billion and US\$ 244 billion in assets, respectively. Also, while every state banking department charters commercial banks, in 2000 only 28 of them issued savings bank charters.

Every state-chartered bank is supervised by its respective state banking department and primary federal regulator. The primary federal regulator is determined by whether the bank is a member of the Federal Reserve or not. Member and nonmember banks have the Fed and the FDIC as their primary federal regulators, respectively.⁴ State-chartered savings banks, in turn, are necessarily supervised by their respective states and the FDIC. Because state-chartered commercial banks are larger in number and assets, and every state, the Fed and the FDIC supervise this category of banks, most of the data on the bank industry used in this paper refer to them.

³ Related to coordination in bank supervision, the literature has analyzed coordination and harmonization of bank regulation across countries. For example, see White (1994), Acharya (2003), Kane (2005), Dell'Ariceia and Marquez (2006), Eisenbeis and Kaufman (2008) and Morrison and White (2009). See also Hardy and Nieto (2010) for a study on optimal bank supervision and deposit insurance with cross-border banking.

⁴ Banks in these categories are necessarily insured by the FDIC. A third category, corresponding to state nonmember banks not insured by the FDIC, existed in the past but was eliminated as all states eventually started requiring FDIC insurance from their chartered depository institutions and the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991 established extremely costly requirements for noninsured banks. However, even before these regulatory changes, FDIC insurance was considered very advantageous competitively, with only a few commercial banks opting out.

The main tool of bank supervision is the bank examination. In an examination, supervisors assess the financial condition of the bank, the quality of its management and procedures, whether it complies with applicable laws and regulations, and identify areas that may require corrective actions. They then communicate their conclusions to management. The examination consists of three major parts: off-site monitoring, on-site examination, and preparation of a final report of the findings.

Off-site monitoring presents a number of benefits, but also some serious limitations that prevent supervisors from relying solely on it. It is typically based on Call Report data submitted quarterly by banks and therefore it can be conducted frequently and require minimal contact with banks, lowering the burden of examinations. Besides having the direct effect of identifying banks in financial distress through the data analysis, off-site surveillance also allows an initial screening of banks before on-site reviews. Hence, it helps to allocate resources for these reviews more efficiently. Off-site monitoring also has important limitations, mostly due to the characteristics of Call Report data.⁵ In some cases, however, such information can be obtained directly from banks during on-site reviews. For various reasons, it is often argued that “the best way for supervisors to track the condition of banks is to conduct frequent, periodic on-site examinations of banks.” (FDIC, 1997).

On-site examinations are conducted by teams of examiners. Examiners plan their on-site review beforehand and analyze documents that may assist in their work, such as past examination reports, information about the bank’s holding company (if any), and descriptions of models, processes or the organization of the bank prepared by the institution itself. Teams vary in size, experience and skills depending on the scope of the exam, the size and complexity of the bank and supervisors’ expectations about its financial condition.

Supervisors are required to perform on-site examinations frequently. State banking departments vary from 12 to 36 months in the maximum interval between examinations in the period

⁵ Call Report data do not contain soft information that may be relevant to risk assessments, such as the quality of management and their practices. Moreover, the level of data aggregation in the Call Reports often prevents accurate risk assessments. For instance, Call Report data have no information about loan distribution across industries or geographic areas.

analyzed in the paper. The FDIC required that nonmember banks be examined at least 12 to 36 months depending on their supervisory ratings, while for the Fed the maximum interval between examinations of its member banks ranged between 12 and 18 months from the early eighties until the early nineties (FDIC, 1997). Since the Federal Deposit Insurance Corporation Improvement Act of 1991 (FDICIA) became effective in December 1992 Federal supervisors must examine banks every 12 to 18 months, depending on their size and risk profile. These frequencies may be altered, however, for both federal and state supervisors if they participate in alternate examination agreements or if they can accept each other's examination reports as substitutes for their own.

When assessing the safety and soundness of an institution on-site, examiners evaluate six main areas and prepare an individual assessment of each one in their final report. The areas are Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity to Market Risk. Based on the evaluation of these six areas, a composite CAMELS rating is assigned. The rating ranges from 1 to 5, where 1 is assigned to banks that raise no supervisory concern and 5 is assigned to institutions that warrant immediate attention from supervisors.⁶

Once the examination is finished, the findings are discussed with the bank's senior management. Supervisors provide comments and recommendations for improvements and, if necessary, obtain a commitment from the bank to solve the deficiencies identified. Depending on the bank's condition, supervisors also discuss with senior management the need for corrective actions. Examiners disclose to senior management the CAMELS rating assigned after the review.⁷ A final report of the findings is sent to the bank's senior management. It describes the bank's overall condition, justifies the CAMELS rating assigned, summarizes the on-site communications with senior managers, including the commitments they made, and recommends improvements.

⁶ The sixth component of the CAMELS rating, Sensitivity to Market Risk, was added in 1997.

⁷ Knowledge of the CAMELS ratings was restricted to regulators until 1982. Between 1982 and 1988 supervisors started disclosing the composite ratings to bank senior management and directors and between 1996 and 1997 their components also started being communicated. See Feldman, Jagtiani and Schmidt (2003) for details.

3 Data

The data used in this paper are a panel where the unit of observation is a state-year pair. The data were obtained from the biannual publication *A Profile of State-Chartered Banking* by the Conference of State Bank Supervisors (CSBS) from 1982 until 2004 and from Call Reports submitted by banks during the same period. Because the Profile is intended to be published biannually but was late a few times, observations in these twenty-two years are separated by intervals that range from two to three years. These data offer a unique opportunity to study what determines how supervisors examine banks. Because they range from 1982 to 2004, they start before CSBS accredited any state banking department and they cover a period when most states were accredited and lifted bank branching restrictions allowing me to better identify the impact of these policies on bank exams.⁸

3.1 Bank Examinations

The data separate the number of examinations performed by state banking departments into five different types: independent, concurrent with the FDIC, concurrent with the Fed, joint with the FDIC, and joint with the Fed. These data were obtained from the volumes of the *Profile of State-Chartered Banking* and the definitions of bank examinations and of types of banks in the publication change over time. Thus, I had to make some judgments in order to maximize the consistency of the time series, as discussed in the appendix. The data used in the paper are summarized in Table 1.

Figure 1 presents the distribution of independent, joint and concurrent bank examinations performed by state banking departments over time.⁹ The graph shows that independent examinations predominated throughout the period: they increased from 79 percent in 1980 to 89 percent in 1990 and since then declined, reaching 70 percent in 2004. Joint and concurrent examinations account for the

⁸ Other examination datasets, such as the National Examination Database (NED), contain more recent observations and thus register fewer state-year pairs before these policies were introduced. NED officially starts in 1989, although it contains exam observations from as early as 1980. However, a large number of exams are missing until 1989. For instance, the first exam lead by a state that this dataset registers is from 1985 only.

⁹ To guarantee consistency over the years, the sample used in this figure is restricted to the twenty states with valid observations in every edition of the Profile. The data used in the regression analysis in section 5, however, do include states that did not have valid observations in every edition.

remainder of the distribution and evolved differently over the study period. Concurrent examinations corresponded to 13 percent of the total in 1980 and decreased to less than 1 percent in 2004, while joint examinations jumped from 8 to 30 percent in the same period.

Data on joint and concurrent examinations are available for member banks (jointly supervised with the Fed) and nonmember ones (jointly supervised with the FDIC) independently. Their percentages are shown for the two federal regulators in Figure 2. Joint examinations with the FDIC range between 41 and 65 percent from 1980 until 1993, but they increase sharply after 1995, reaching 98 percent by 2004. Joint examinations with the Fed rise from 8 percent in 1980 to 100 percent in 2004.

The sharp increase in the percentage of joint examinations at the expense of independent and concurrent ones between 1993 and 1998 shown in figures 1 and 2 can be explained by initiatives undertaken by supervisors to foster coordination among them. As mentioned above, the FDICIA mandated that federal supervisors examine banks at least every 12 to 18 months, depending on their risk profile, which motivated supervisors to substitute concurrent examinations by joint ones because both count as one examination for the minimum frequency requirement but the latter demand less work. Also, the Riegle Community Development and Regulatory Improvement Act of 1994 mandated that federal supervisors coordinate examinations with their state counterparts and in 1996, the Fed, the FDIC and the CSBS (on behalf of state banking departments) signed an agreement with the objective of minimizing regulatory burden and of improving efficiency by conducting more joint examinations or alternating independent ones (Fed, 1996). All these initiatives favored joint examinations as opposed to concurrent or independent ones.

The data have three important limitations: First, they do not describe the choice of exam type at the bank level, only the aggregate number of each type by state. Second, data on independent examinations conducted by the FDIC or the Fed are not available. Third, the number of independent examinations performed by state banking departments is not separated by member and nonmember banks.

These three facts have different consequences for my analysis. Aggregate data by states imply, of course, that the dependent variables – which are based on bank examinations – must be defined at the state level. This limitation however does not prevent an adequate empirical analysis because examination choices within states are not independent and therefore the state-year pair may be the preferable unit of analysis. The lack of data on independent examinations performed by federal regulators implies that all the empirical analysis must be based on examinations performed by state banking departments. Moreover, it must be assumed that the number of independent examinations performed by federal regulators is not correlated with the observables that enter in the empirical specification, because this number is not observed. Finally, the data do not report independent and nonindependent examinations separately by member and nonmember banks. Thus, little can be said, for instance, about differences in the fraction of independent examinations between member and nonmember banks. However, some inference on differences in examination practices applied to member and nonmember banks can still be made because the numbers of joint and concurrent examinations are discriminated by member and nonmember banks. I thus can study how departments choose between these two types of examinations together with a federal regulator separately for the cases when this regulator is the Fed or the FDIC.

Due to these restrictions, the dependent variables measure (i) the number of different types of examinations performed by state banking departments and (ii) the fraction of joint examinations relative to the total number of joint and concurrent examinations, discriminated by member and nonmember banks.

3.2 States' and Banking Departments' Characteristics

The data on state banking departments' characteristics were obtained either from the Profile or directly from the CSBS. The CSBS accredits state banking departments based on their ability to supervise banks. The CSBS accreditation is considered by federal regulators in deciding how to share the supervision with state regulators and measures the quality of the latter (FDIC, 2002). The CSBS

reports which departments are accredited and the date of their accreditation.¹⁰ Based on this, I created a dummy variable that is equal to one if the department is accredited and zero otherwise. Data from the Profile record commercial bank examiners' salaries, departments' required bank examination frequencies, whether they can accept federal supervisors' reports as substitutes for their own, whether they participate in cooperative examination programs with federal regulators, and two measures of financial resources available to bank supervision: departments' annual budgets and the amount they allocate to commercial bank supervision.¹¹

Whether state banking departments can accept federal supervisors' examination reports as substitutes for their own and whether they participate in cooperative examination programs with federal regulators determine the frequency of safety and soundness examinations and also which banks should be examined alternately and which ones should be examined independently, concurrently or jointly.¹² These agreements generally establish the pre-examination procedures, the responsibilities of each regulator for preparing reports, the responsibilities for conducting specialty examinations, the procedures for coordinating informal and formal enforcement actions, for reviewing and deciding on bank applications, and for sharing supervisory information and developing uniform requirements, the communication with bank management and directors, and invitations for each other's staff to participate in training programs (FDIC, 2004; Fed, 2008).¹³ Data on departments' required bank

¹⁰ These data are available at www.csbs.org.

¹¹ A few observations reported salaries as a single number as opposed to the minimum and the maximum commercial bank examiner salary. I eliminated these observations in empirical specifications that included salary as an independent variable.

¹² Banks may be separated across these types of examinations either by broad categories such as rating, size and location, or by listing institutions directly. See also Flannery (1983) for evidence that the FDIC and the state bank departments reach similar conclusions in their examinations, therefore supporting the use of states' reports as adequate substitutes for the FDIC's.

¹³ It must be emphasized, though, that a formal agreement between a federal and a state supervisor is neither a sufficient nor a necessary condition for them to coordinate bank examinations. Supervisors may alternate with each other or perform joint examinations even without a formal agreement. Moreover, these agreements are limited in their scope. They typically exclude problem banks, which are then examined by both supervisors. They allow supervisors to conduct independent examinations or to change their own schedules subject only to notification to the other supervisor. Also, under alternate examination agreements, each supervisor's staff reviews the other's reports to ensure that the conclusions are adequate. Supervisors, however, may disagree with the assigned rating or reject the examination reports. In these cases they must discuss the causes of disagreement with each other. In practice, however, reports are almost never rejected (FDIC, 2004).

examination frequencies, whether they can accept federal supervisors' reports as substitutes for their own, and whether they participate in cooperative examination programs with federal regulators however are missing for a significant number of state-year pairs (see table 1 and the note of figure 3). For this reason, I do not include them among the independent variables in the regressions.

Figure 3 shows of the percentage of state banking departments participating in the Divided Examination Program with the FDIC and in the Alternate Examination Program with the Fed over time. Agreements with both federal supervisors have a similar and positive trend. Starting at 45 and 32 percent of states with agreements with the FDIC and the Fed, respectively, in 1981, the percentage of such agreements reached 100 and 87 percent in 2002.¹⁴

The two measures of financial resources contained in the Profile – departments' annual budgets and the amount allocated to commercial bank supervision – are important for two reasons, although they are possibly endogenous. First, one must be able to separate its impact on the financial resources available to banking departments (a supply side effect) from any other channel to understand how the number of banks affects the choice of examinations. Second, federal supervisors consider whether state banking departments are adequately budgeted when deciding if they can rely on their examinations (e.g., FDIC, 2002). However, both state banking departments' annual budgets and in particular the amount allocated to commercial bank supervision are possibly endogenous to examination types. These two variables can be endogenous, for example, if the technical sophistication of banking departments is not observable, because it determines both the types of examinations performed and resources available to them. In this case, both variables would be correlated with the disturbance. Taking that into account, I constructed a third variable intended to measure the resources available to banking departments that is exogenous to their examinations.

¹⁴ Even though federal supervisors and state banking departments have established alternate examination agreements since the late seventies, in 1994 the Riegle Community Development and Regulatory Improvement Act required the Federal Financial Institutions Examination Council (FFIEC) to issue guidelines for when federal supervisors could rely on their state counterparts' examinations, which happened in the year after (FFIEC, 1995; Fed, 1995).

This variable is an estimate of the supervisory fees that state banking departments would earn from their respective state banks if their fee schedules were the same as those of the Office of the Comptroller of the Currency (OCC), the national banks' regulator, in 2004. Most state banking departments and the OCC have their budgets covered by fees charged from the banks they supervise, i.e., state and national banks respectively. Thus, a natural candidate for a proxy for the resources available to state banking departments would be their revenues from assessment fees, which are a function of the characteristics of the banks they supervise and of their assessment fee schedules. However, while the population of banks they supervise is arguably exogenous to the examinations they perform, their assessment fee schedules may not be, for the very reasons discussed above. Thus, I use the OCC's General Assessment Fee schedule effective January 2004 (OCC, 2003) – which is exogenous to examinations performed by states – and apply it to the state banks corresponding to each state-year pair. This schedule is a concave function of a bank's total assets and the simulated revenues of a given state-year pair are the sum of the values this function takes for each bank in that pair.¹⁵ These simulated revenues replicate what states' revenues from assessment fees would be if their schedules were the same as the OCC's in 2004. Since this schedule is held constant over time and across states, all the variation in simulated revenues across these two dimensions is due to differences in the population of state banks. Moreover, because the simulated revenues are a function of the whole distribution of state bank's assets, they contain information beyond that encompassed by the other state banks' characteristics I control for in the regressions.

These data are complemented by other independent variables obtained from Call Reports and from the FDIC. The Call Reports data measure the number and the assets of state member and nonmember banks in each state. I use the median and the 90th percentile of bank's assets as measures

¹⁵ To apply this schedule to bank data from different years, I deflated assets using the GDP Implicit Price Deflator. A Matlab code constructed to perform this simulation is available upon request.

of their size distribution.¹⁶ The FDIC data are used to control for the number of banks that failed or were assisted by this regulator in each state-year pair.

The data also include information on intrastate and interstate branch deregulation. I use two dummy variables that are equal to one if intrastate or interstate deregulation occurred and zero otherwise, respectively. Intrastate deregulation is defined as the year in which a state allowed banks based in it to open new branches through mergers and acquisitions, which typically precedes branch deregulation. Interstate deregulation is defined as the year in which a state allowed banks from other states to acquire its incumbent banks either unconditionally or conditional on reciprocity from those states. These data are obtained from Amel (1995) and have been widely used in the literature on branch deregulation.¹⁷ They may be correlated with the types of examinations conducted for two reasons. First, deregulation should affect the distribution of examinations because it is both cause and consequence of changes in banks' characteristics. Deregulation allowed more entries, mergers and acquisitions and thus changed the characteristics of banks. Changes in banks' characteristics – such as the diffusion of automated teller machines – in turn have also contributed to deregulation. Second, states also removed branching restrictions when they needed potential buyers for their troubled banks during periods of high bank risk. Thus, controlling for deregulation is important to identify precisely the effect of bank risk on the distribution of examinations.

4 Empirical Strategy

The purpose of this paper is to investigate what determines how institutions are examined by joint supervisors. For this purpose, I use a regression with the form:

$$Y_{ijst} = \alpha + \beta X_{st} + \gamma_s + \delta_t + \varepsilon_{ijst} \quad (1)$$

¹⁶ The empirical results in the paper are mostly robust to changes in the percentile of banks' assets.

¹⁷ Jayaratne and Strahan (1996), Kroszner and Strahan (1999) and Demyanyk, Ostergaard and Sørensen (2007) use the same data and the same definition of intrastate deregulation but different definitions of interstate deregulation dummies from mine.

Where Y_{ijst} is the natural logarithm of the number or the fraction of examinations of type i in banks of category j in state s and year t , α and β are coefficients to be estimated, X_{st} is a vector containing observed time-varying characteristics of states, γ_s and δ_t are state and time-fixed effects, respectively, and ε_{ijst} represents an unobservable error specific to each combination of its four arguments.

For Y_{ijst} I use either the natural logarithm of the number or the fraction of examinations of different types. When using the number of examinations, I separate them between independent and joint or concurrent ones.¹⁸ Joint and concurrent examinations are added because of the large number of state-year pairs with no concurrent examinations, which causes many observations to be dropped when their logarithms are taken. When using fractions of examinations, I consider the ratios of joint over the total of joint and concurrent examinations discriminated by member and nonmember banks. These ratios measure the number of examinations in which federal and state supervisors prepared a joint report with a single message relative to the number of examinations they performed together but prepared separate reports. For this reason, supervisors consider joint examinations more cooperative than concurrent ones.

The number of independent examinations relative to the number of joint and concurrent ones, however, cannot be given such interpretation because it is ambiguously related with cooperation. On the one hand, joint and concurrent examinations should be more frequent the more supervisors cooperate for two reasons. First, the better they coordinate their schedules and resources, the easier it becomes for them to examine banks together. Second, the more they rely on each other's reports and

¹⁸ The ratio between independent examinations and the total number of examinations or the ratio between independent examinations and the total number of banks could be used as dependent variables to study what determines how supervisors choose between independent and joint or concurrent examinations instead of the natural logarithms of the number of independent examinations and of the number of joint or concurrent ones. However, the ratio of independent on the total number of examinations cannot discern whether supervisors increase the number of independent examinations or decrease the number or joint or concurrent ones in response to changes in the independent variables, which is a relevant question in the paper. Similarly, the ratio between independent examinations and the number of banks would not allow me to analyze how supervisors change the examinations they perform in response to changes in the number of banks.

the more they alternate with each other in examining banks, the fewer independent examinations they need to perform. On the other hand, when supervisors cooperate in alternate examination programs, they actually reduce the number of joint or concurrent examinations, therefore lowering their number relative to independent ones.

Banks' characteristics enter in X_{st} separately by member and nonmember banks. This is motivated both by the fact that these two types of banks differ substantially and because the characteristics of each respective category of banks should in principle explain more of its respective number and distribution of examinations, i.e., the number of nonmember banks should explain more their own number of examinations than the number of member banks and vice versa. Moreover, I control for the characteristics of both member and nonmember banks even in regressions where exams of only one of these two categories of banks only are included in Y_{ijst} to compare the results when different dependent variables are used.

5 Results

In this section I present the regression results based on equation (1). I start with the results when state fixed effects, i.e. the term γ_s , are not included in the regression. Although in this case I cannot account for unobserved heterogeneity across states, the results without fixed effects should be analyzed first for two reasons. First, banks' assets and numbers and departments' budgets vary substantially across states at any point in time compared to how much they do for each state over time and these characteristics should have a relevant impact on examinations that cannot be measured when fixed effects are included. Second, supervisors may differ in how they respond to differences in characteristics across states compared to changes over time. Indeed, the results presented in this section indicate that this is actually the case.

Table 2 shows the regression results without state fixed effects. In this table I give special attention to the coefficients on the number of banks and on state banking departments' budgets. The

first column shows the results when the dependent variable is the total number of examinations. Both the coefficients of the number of member and nonmember banks are positive and significant but the latter is naturally much larger given that there are more nonmember than member banks. The coefficient on departments' budgets is also positive and significant, implying that the elasticity of examinations with respect to the budget is equal to 0.121.

To better understand how the numbers of banks and departments' budgets determine the number of examinations, I now divide examinations between independent and joint or concurrent ones. Column 2 shows the results for the same specification in column 1, but now with independent examinations as the dependent variable. The coefficients of the number of banks in column 2 are larger than their counterparts in column 1, where the dependent variable is the total number of examinations. The coefficient of member banks, however, is no longer significant. These results are consistent with the fact that nonmember banks are more likely to be examined independently than member ones. The coefficient of the budget allocated to commercial bank supervision in column 2 is more than twice as large as the same coefficient in column 1, indicating that independent examinations are more elastic to the resources available than are examinations together with a federal regulator.

The specifications in columns 3 and 4 differ from those on column 2 only by the variable used to measure the resources available to the state banking department: the total department budget and the simulated revenues from assessment fees, respectively. The three different measures are used to check if the results are robust. Moreover, since the budget allocated to commercial bank supervision and the total budget are likely to be endogenous to the number of examinations performed, it is important to estimate equation (1) not only with actual figures, but also with the simulated revenues, which are not endogenous to examinations. The estimates from column 2 are very similar to those in column 3, where the total department budget is used, but they differ from those in column 4, where the simulated revenues are used. The main coefficient in these regressions – on the number of nonmember banks – drops from 0.730 and 0.795 in columns 2 and 3, respectively, to 0.524 in column 4, which can be

attributed to the endogeneity of the budget measures used in columns 2 and 3.¹⁹ However, even in this case the coefficient estimate implies a substantial impact of the number of nonmember banks on the number of independent examinations.

Columns 5 to 7 repeat the specifications in columns 2 to 4 but now use the number of examinations with a federal supervisor as the dependent variable. The coefficients of the number of nonmember banks are much lower compared to their counterparts when independent examinations were used as the dependent variable and are never significant at a five percent level. On the other hand, the coefficients of the number of member banks in columns 5 to 7 are larger than those in columns 2 to 4, although they become significant only when the simulated revenues from assessment fees are used. These results can be justified by the fact that member banks are typically larger than nonmember ones and thus are more likely to be examined jointly or concurrently with a federal supervisor. Still, I found little evidence that states with more banks are more likely to examine banks either independently or together with a federal supervisor.²⁰

Departments' budgets on the other hand impact the number of examinations with a federal supervisor very distinctly compared to independent examinations. As shown in columns 5 to 7, the coefficients of the three measures employed are always negative and are significant at the five percent level only when the simulated revenues are used. Given the previous results from columns 2 to 4, where these coefficients were always positive, large and statistically significant, I conclude that state banking department with larger budgets conduct more independent examinations relative to joint or concurrent ones. This result is actually very clearly illustrated by Figure 4, which shows how the proportion of independent examinations relates to the budget allocated to commercial bank

¹⁹ The lower coefficient in column 4 might also be attributed to the larger sample used compared to columns 2 and 3. In order to test whether this possibility I also estimated the specification in column 4 restricting the sample to the observations used in column 2 only. The coefficient on the number of nonmember banks decreases even further to 0.393 but remains statistically significant at the 5 percent level, which supports the hypothesis that endogeneity is the main cause of the difference in estimates when simulated revenues are used. These results are not included in the paper for the sake of brevity but are available from the author upon request.

²⁰ I also did not find any evidence that the number of banks had any impact on the distribution of examinations based on regressions with the percentage of independent examinations used as the dependent variable and without state fixed effects. These regressions are not reported in the paper for the sake of brevity.

supervision in 1992. I chose 1992 simply because it is the median of my panel. The graph shows that states with small budgets such as Hawaii and Nevada rely mostly on examinations with a federal regulator, while states with large budgets such as Illinois and Texas perform most of their examinations independently. This result can be interpreted straightforwardly: Independent examinations are costlier and therefore departments with smaller budgets should demand more support from federal supervisors in examinations.

Table 3 presents the regression results with state fixed effects. The first column reports the results for the total number of examinations by state-year pairs. The coefficient of the number of nonmember banks implies that a one percent increase in their number increases the number of examinations by 0.74 percent and this effect is statistically significant. The coefficient of the number of member banks is not significant, which is consistent with the fact that the numbers of member and nonmember banks are highly correlated and that the former are typically fewer and therefore should have a weaker impact on the total number of examinations.

The coefficient of the number of nonmember banks decreases to 0.577 when independent examinations only are used as the dependent variable and it increases to 0.880 when joint or concurrent examinations only are used, in columns 2 and 3 respectively. These results together imply that the proportion of joint or concurrent examinations over the total number increases with the number of these banks. These results also contrast with those in the previous table, where state fixed effects were not included in the regressions and there was no evidence that the number of banks affected the distribution of examinations. Taken together they indicate that while differences in the number of banks across states do not determine how they examine institutions, states accommodate shocks in their number over time mostly by examining more or fewer banks together with federal supervisors.

In column 4, joint or concurrent examinations of nonmember banks alone are considered, i.e., examinations performed by a state banking department and the FDIC together. The coefficient of the number of nonmember banks remains roughly unchanged, equal to 0.854, consistent once again with

the fact that nonmember bank examinations dominate the total number of joint and concurrent examinations. In column 5, joint or concurrent examinations of member banks only are considered, i.e., performed by a state banking department and the Fed together. Now the coefficient of the number of nonmember banks decreases and is not significant while the coefficient of the number of member banks increases to 0.670 and is statistically significant. This result is obviously expected because the number of examinations with the Fed should be determined by the number of member banks as opposed to nonmember banks. However, the fact that the coefficient of the number of member banks is large and significant and the coefficient of nonmember banks is small and not significant when examinations with the Fed only are considered, and that the opposite holds when examinations with the FDIC only are considered, indicates that these estimates measure a true causal effect of the number of banks on the number of examinations instead of resulting from unobservable state characteristics correlated with either the number of member or nonmember banks. If the estimates were driven by unobservable state characteristics, they would most likely be similar if the dependent variable was either the number of examinations with the Fed or the FDIC.

The table also shows that banks' characteristics determine the examinations performed. The coefficient on bank size – measured by the 90th percentile of nonmember bank assets – is small and not significant when the dependent variable is the total number of examinations or the number of independent examinations. On the other hand, when the dependent variable is the number of joint or concurrent examinations of both member and nonmember banks or of nonmember banks alone, it is significant and larger, equal to 0.583 and 0.588 respectively. This result corroborates the fact that state and federal supervisors are more likely to alternate with each other in conducting independent examinations of small institutions and examine together the largest and most complex institutions. The estimates suggest that for every one percent increase in the size of the 90th percentile institution, the number of joint or concurrent examinations increases by around 0.58 percent, while the total number or the number of independent examinations remains constant. When joint or concurrent examinations with the Fed are used as the dependent variable, this coefficient is smaller and significant only at the

10 percent level, consistent once again with the fact that member bank examinations should not be affected by the characteristics of nonmember banks.

Branching deregulation also impacts the number of examinations performed by states. According to the first column in the table, both intrastate and interstate branching deregulation have a negative impact on the total number of examinations, decreasing them by 0.147 and 0.191, respectively. The latter therefore has a stronger effect on the total number of examinations and also decreases the number of independent examinations strongly, by almost a quarter, according to the second column. On the other hand, branching deregulation does not have any meaningful impact on examinations with either the FDIC or the Fed. These results are consistent with the fact that after deregulation, institutions were more likely to be acquired and consolidated within holding companies, therefore requiring fewer examinations. Such effect should be observed even after controlling for the number of banks, because consolidation within holding companies may leave the number of banks unchanged while reducing the number of independent institutions. Consistent with the evidence presented here, the impact of deregulation should be stronger on independent examinations than on joint or concurrent ones because, as mentioned above, smaller institutions are more likely to be examined independently and as institutions consolidate the size distribution of banks shifts rightwards.

Table 4 investigates whether the results for independent examinations are robust to changes in the empirical specification. Columns 1 and 2 repeat the specification presented in the second column of Table 3, but now substitute the budget allocated to commercial bank supervision with the department's budget and the simulated revenues from assessment fees, respectively. I find that the coefficient of the number of nonmember banks decreases substantially, to 0.358 and 0.320, respectively, and loses its statistical significance. The coefficient is also lower in column 3 when I control for examiners' salary – 0.366 – even though the sample is drastically reduced from the original 334 observations to only 193 in this case. In column 4 the number of failed and assisted state banks is added to the basic specification. The estimate of the coefficient of the number of nonmember banks

remains roughly unchanged compared to the baseline specification.²¹ In column 5, I restrict the sample to states that accepted FDIC or Fed examination reports as substitutes for their own in 1991 in order to control for the impact of this form of cooperation between federal and state supervisors on the number of independent examinations. The coefficient of the number of nonmember banks is now equal to 0.651, thus higher but close to the basic specification's. In summary, the coefficient of the number of nonmember banks when the number of independent examinations is the dependent variable ranges between 0.320 and 0.651 and therefore is always below the estimate when the number of joint or concurrent examinations is employed.

I now investigate in more detail whether the results for examinations conducted with federal regulators are robust. Table 5 employs as the dependent variable the number of joint and concurrent examinations performed by state banking department together with the FDIC. The coefficients of the number of nonmember banks and of the 90th percentile of nonmember banks' assets remain large and statistically significant throughout a variety of specifications. Columns 1 to 5 vary the basic specification by replacing the budget allocated to commercial bank supervision with the department's budget and with the simulated revenues from assessment fees, by including examiners' salary and failed and assisted state banks as independent variables, and by restricting the sample to states which had a valid cooperation agreement with the FDIC in 1991. Across these specifications, the coefficient of the 90th percentile of assets of nonmember banks ranges from 0.452 to 0.888, which implies a moderate effect of bank size on examinations. The 0.588 estimate from column 4 in Table 3 implies that increasing the assets of the nonmember bank in the 90th percentile of asset distribution by one standard deviation increases the number of examinations with the FDIC by 3.8 percent. The coefficient of the number of nonmember banks varies from 0.843 when bank failures and terminations are controlled for to 1.311 when examiners' salary is included in the regression, but in the latter case the sample is reduced to only 147 observations. All these estimates are higher than the baseline

²¹ This result also did not change when I replaced the number of failed and assisted banks with the ratio between their assets and total banks' assets.

specification's in column 4 of Table 3 and thus always higher than those in regressions using independent examinations as the dependent variable. Depending on the specification in Table 5, the coefficient of the number of nonmember banks is more than three times the corresponding estimate in Table 4. Taken together these results reinforce the idea that joint or concurrent examinations increase with the number of banks more than independent examinations do.

In Table 6 the dependent variable is the number of joint and concurrent examinations performed by state banking department together with the Fed. Columns 1 to 4, respectively, show that the results obtained in column 5 of Table 3 are also robust to replacing the budget allocated to commercial bank supervision with the whole budget of the state banking department or with the simulated revenues from assessment fees and to including examiners' salary and failed and assisted banks as independent variables. In column 5, the sample is restricted to states which had a valid cooperation agreement with the Fed in 1991. The coefficient of the number of member banks is always statistically significant, ranging between 0.527 and 0.699, and therefore always close to the baseline estimates of 0.670 presented in Table 3. The coefficient of the number of nonmember banks is never significant – as in the baseline specification – which once again corroborates the idea that they measure a true relation between the number of banks and the number of examinations instead of the effects of unobservable variables on examinations.

These results confirm the previous evidence that the percentage of independent examinations performed by state banking departments decreases the larger the number of banks. Indeed, federal regulators support states with limited staff or capabilities that are responsible for supervising a large number of banks. Thus, when the number of banks a state supervises increases, federal and state supervisors increase the number of examinations they perform together in order to alleviate the burden on the latter.

I now investigate further whether federal and state supervisors coordinate examinations to help the most burdened and least capable state banking departments. Table 7 shows the estimates when the dependent variable is the fraction of joint examinations among all examinations together

with the FDIC or the Fed. The first three columns of the table present the results for examinations with the FDIC and the last three columns for examinations with the Fed. The results on the effect of the number of banks on the distribution of examinations are weak: The coefficient of the number of nonmember banks varies in sign depending on the specification employed for both member and nonmember bank examinations and it is never statistically significant. The coefficient of member banks is significant at the 5 percent level only when the state banking department' budget is used for both nonmember and member banks, as shown in columns 2 and 5 respectively. Moreover, the coefficients imply a very modest impact of the number of these banks on the fraction of joint examinations. For example, the 0.100 coefficient on the number of state member banks in column 2 implies that doubling the number of these banks would cause the fraction of joint examinations to increase by ten percent only.

CSBS accreditation, on the other hand, appears to impact the fraction of joint examinations for both nonmember and member banks. The estimate of the coefficient in column 1 implies that accreditation decreases the fraction of joint examinations with the FDIC by 13.8 percent. This impact is larger in absolute terms when the budget of the department or the simulated revenues is employed, in columns 2 and 3, respectively. The result is very similar for examinations together with the Fed. The baseline estimate in column 4 implies that CSBS accreditation decreases the fraction of joint examinations by 15.4 percent, and this effect is larger when different measures of resources are used in columns 5 and 6. The coefficient on CSBS accreditation is not significant at the five percent level only when the budget allocated to commercial bank supervision is used as a measure of resources, but that can be justified by the fact that the sample size is reduced in this case. When the department's budget or the simulated revenues are used, this coefficient is significant at the five percent level.

Even though accreditation is correlated with other independent variables, the empirical evidence suggests that it affects the distribution of joint versus concurrent examinations. Indeed, state banking departments with larger and more numerous banks tend to be accredited by the CSBS earlier. Figures 5 and 6 show the relation between accreditation date and the number and total assets of state

banks, respectively, in 1984, the year Illinois became the first state with an accredited department. States with many state banks such as Illinois were accredited still in the eighties, while states with few ones such as Alaska had to wait two decades. Similarly, states with a large volume of state bank assets such as New York were accredited two decades before states with little volume such as South Dakota. Other states with small state bank industries, such as Nevada or Rhode Island, have not been accredited yet. However, in Table 7 the coefficients on CSBS accreditation are statistically significant in most specifications, while those on banks' size and characteristics are not. Moreover, when CSBS accreditation was removed from the regressions in this table, the coefficients of these variables remained roughly unchanged.²²

Given these results, why does CSBS accreditation increase the share of concurrent versus joint examinations? The CSBS evaluates departments' ability to supervise institutions by reviewing examination staff, policies and practices, among other aspects. To the extent that accreditation measures departments' ability to examine institutions adequately, accredited departments should rely less on federal regulators to prepare examination reports and therefore should have a larger share of concurrent versus joint examinations compared to departments that are not accredited. The results from this table thus corroborate the hypothesis that federal and state supervisors coordinate examinations in order to compensate for the lower ability of some states, which are not accredited by the CSBS. Other variables that were found to determine the number of independent and the total of joint and concurrent examinations, such as the number and characteristics of banks and branch deregulation, do not appear to affect it.

6 Conclusion

This paper studies what factors determine whether state banking departments examine banks independently, concurrently or jointly with a federal regulator. Departments with large budgets

²² The results of regressions that do not include CSBS accreditation were not included for the sake of brevity but are available upon request.

examine more banks independently. Joint or concurrent examinations increase more with the number of state banks than independent examinations. Joint or concurrent examinations also increase with bank size, while independent examinations decrease with branching deregulation. This is consistent with the fact that deregulation consolidated banks within fewer independent firms and state and federal supervisors tend to examine large and complex institutions together instead of independently. The number of joint versus concurrent examinations decreases when states are accredited by the CSBS, suggesting that federal and state supervisors coordinate their work in order to support the least capable state banking departments.

These results have important implications for bank supervision and regulation. They show that the number and size distribution of banks determine the examinations performed. However, banks open, close, merge or grow depending on how they are regulated. Thus, policymakers should integrate bank regulation and supervision by anticipating how regulation affects examinations. To be fair, policymakers typically consider how supervision can be affected by regulation but only to the extent that it defines the jurisdictions of supervisors over existing banks. The results in this paper instead call attention to the fact that regulation must also take into account how it impacts supervision, by determining the number and size distribution of banks even when it does not affect these jurisdictions.

Whether these results can be used for policy, however, depends on how supervisors modify their examination strategies over time. For example, federal and state supervisors have strived to coordinate their work and this contributed to increase the fraction of joint versus concurrent examinations of state banks in the two decades studied. In a more recent example, the Federal Reserve has recently emphasized the importance of consolidated supervision of large and complex financial institutions, recognizing that they are managed to a great extent as a whole instead of separated by their legal, corporate or national boundaries (Bernanke, 2009). Thus, the relation between banks' characteristics and the exams estimated here may change over time. Future research should investigate whether this relation will persist over time and how it will interact with recent and future changes in supervisors' strategies.

Future research may also reveal more about banks' characteristics that determine examinations, about other forms of cooperation and about examinations by national supervisors. Banks' individual characteristics determine the type of examinations they are subject to and bank level data would help to identify these characteristics. Other forms of cooperation should also be analyzed, including communication and information sharing among supervisors. Additional research is welcome on international coordination among supervisors as well. For instance, as banks have increased their activities across national borders, regulators are sharing more information and conducting joint examinations more often (Economist, 2008). The results in this paper are based on examinations by federal and state supervisors within the United States and they may not apply directly to international banks. A similar study on examinations across national borders would impose new challenges because the researcher would have to take into account the heterogeneity in bank supervision and regulation across countries. However, such research would be extremely valuable considering that the current concerns about the safety and soundness of international banks have motivated most of the interest in how joint supervisors examine financial institutions.

Appendix

This appendix describes the bank examination data obtained from the Profile. It details the types of examinations reported in each edition and reports which ones were used and how they were used to construct the panel of bank examinations employed in the paper.

The 1981, 1984, 1986, 1988, 1990, 1992, 1994 editions of the Profile report the number of independent, concurrent with the FDIC, concurrent with the Fed, joint with the FDIC and joint with the Fed commercial and mutual savings bank examinations performed in 1980, 1982, 1984, 1987, 1990, 1992 and 1993, respectively. All these variables were used in the panel.

The 1996 edition reports the total number of safety and soundness examinations, the total number of compliance examinations and the number of examinations concurrent with the FDIC, concurrent with the Fed, joint with the FDIC and joint with the Fed conducted in 1995. The first two

variables were not used in the paper. Because the number of independent examinations was not explicitly reported in this edition, data on examinations in 1995 were not used in the estimations when the dependent variable was the share of independent examinations. The last four variables were used when the dependent variable was the share of joint versus concurrent examinations.

The 1998 edition reports the total number of safety and soundness examinations, the total number of compliance examinations and the number of examinations concurrent with the FDIC, concurrent with the Fed, joint with the FDIC, joint with the Fed conducted, alternate year (independent) with the FDIC and alternate year with the Fed conducted until November 1998. The first two variables were not used and the other six were. The last two variables were added to calculate the total number of independent examinations. It should be noted that the 1998 edition is the only one that separates independent examinations of member and nonmember banks. I assumed that the shares of examinations until November 1998 correctly approximate the respective shares for the whole year.

The 2000 edition does not include data on examinations of state-chartered banks.

The 2002/2003 edition reports the total number of safety and soundness examinations and the number of safety and soundness examinations concurrent with the FDIC, concurrent with the Fed, joint with the FDIC, joint with the Fed and state only alternate year / independent safety and soundness examinations conducted in 2001. The first variable was not used but the other five were. Since these data are restricted to safety and soundness examinations, I implicitly assumed that the shares of examination types are the same for compliance and safety and soundness examinations or that they differ by a constant value across states in 2001. Such constant would be captured by the year fixed effects introduced in the specifications used in the paper. This assumption was necessary in order to use these data together with the data from previous editions, which may also include compliance examinations. This edition also reports the number of IS examinations, which were not used.

The 2004/2005 edition reports the total number of safety and soundness examinations and the number of safety and soundness examinations concurrent with the FDIC, concurrent with the Fed, joint with the FDIC with state lead, joint with the FDIC with federal lead, joint with the Fed with state

lead, joint with the Fed with federal lead and state only independent safety and soundness examinations conducted in 2004. The first variable was the only one not used. The values of each examination type with federal and state lead were added to calculate the number of examinations concurrent with the FDIC, concurrent with the Fed, joint with the FDIC and joint with the Fed. Similarly to the previous edition, these data are restricted to safety and soundness examinations, and here I implicitly imposed the same assumption as with the 2001 examination data. This edition also reports the number of IS examinations, which were not used either.

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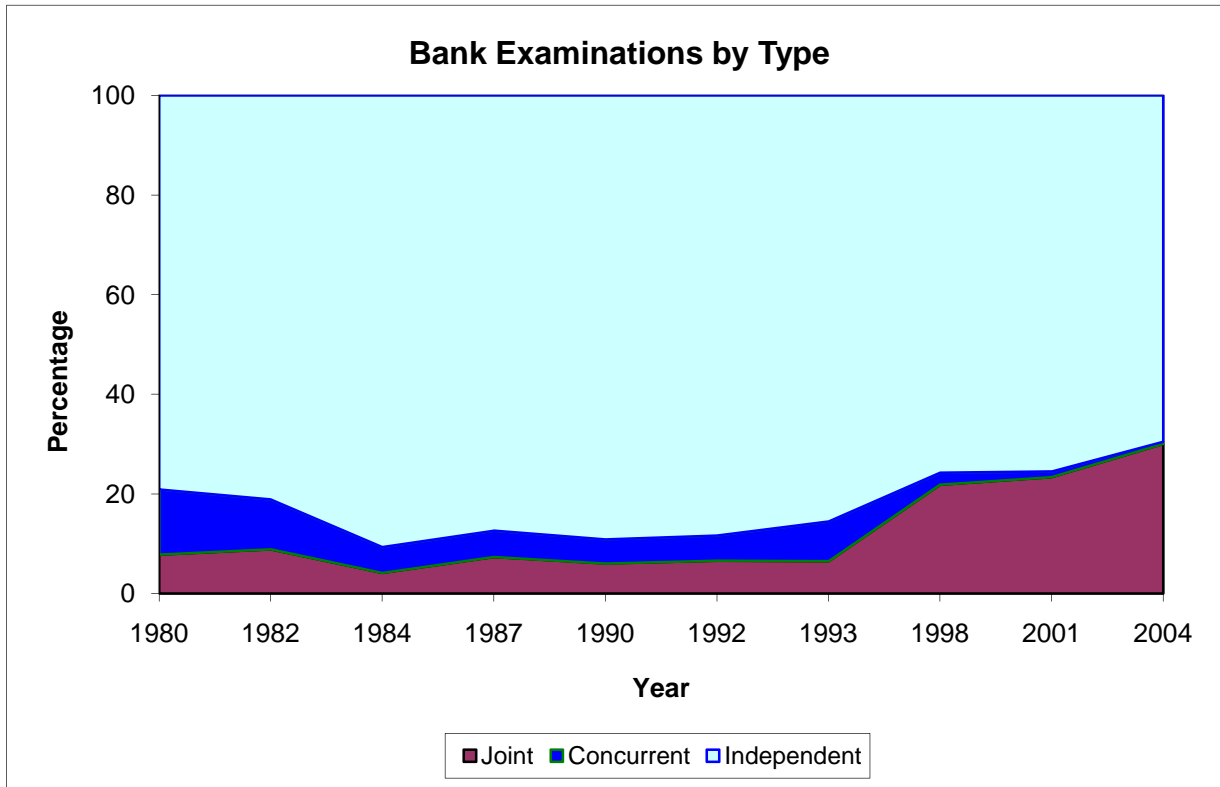
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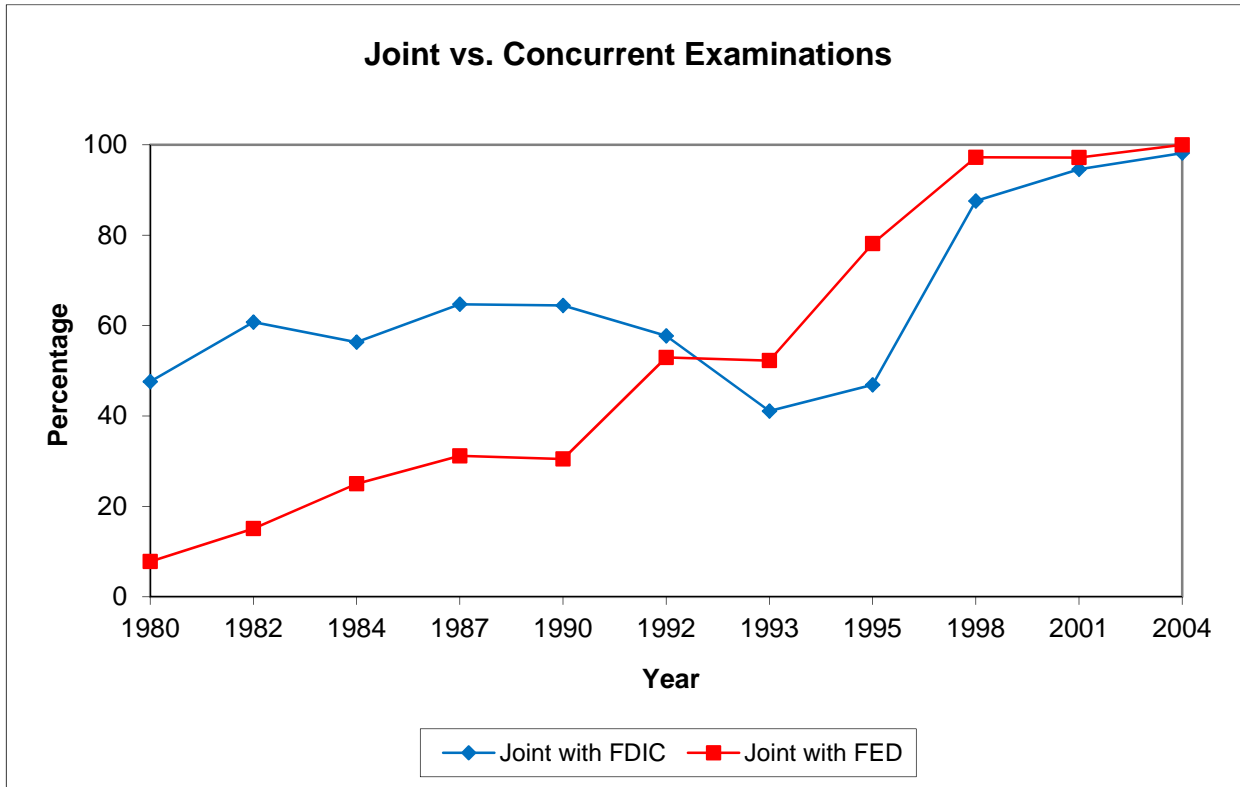
Figure 1
Independent, Joint and Concurrent Examinations



Note: The data used in the figure are restricted to states with valid observations in all the editions of the Profile of State-Chartered Banking from 1981 to 2004/2005. The states included are AL, CA, DE, FL, GA, IA, ID, IL, MI, MT, NC, ND, NJ, NM, OH, OK, OR, PA, TN and WA. The 2000 edition of the profile does not include data on examinations of state-chartered banks.

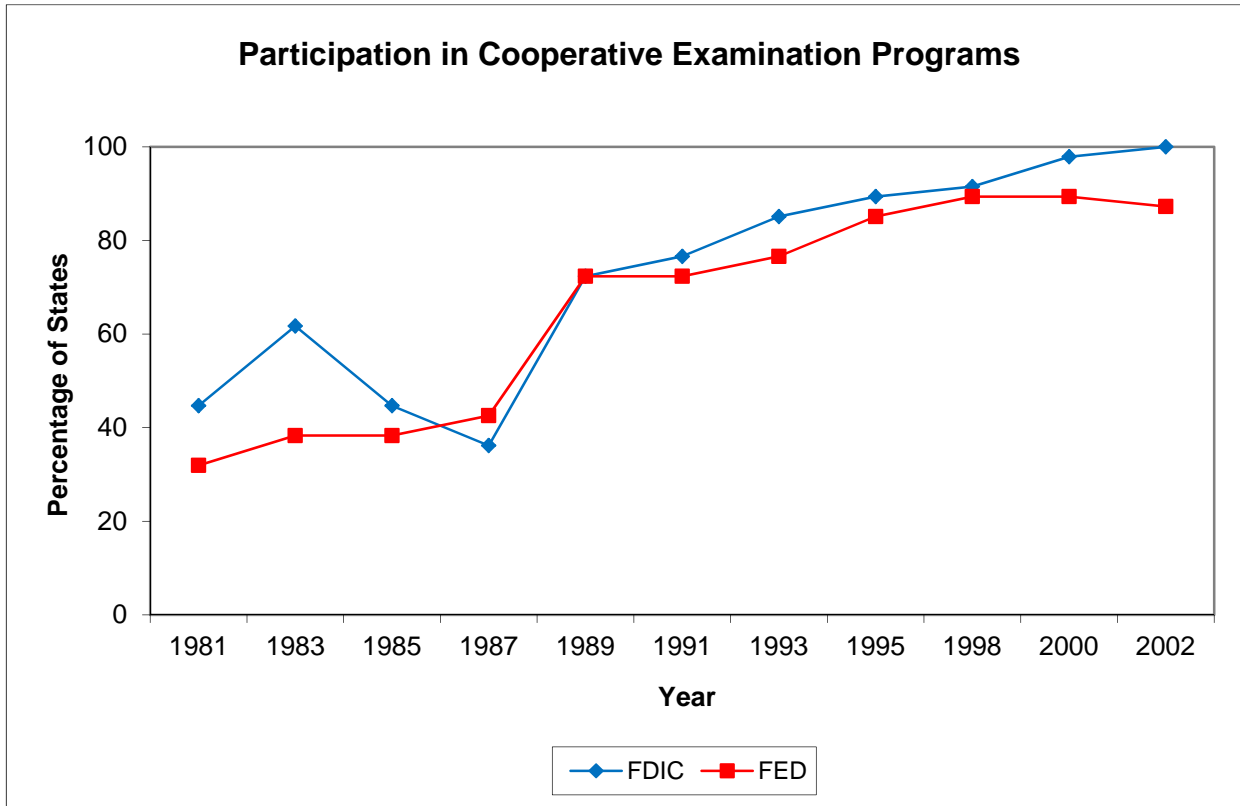
Figure 2

Joint and Concurrent Examinations with Federal Regulators



Note: The data used in the figure are restricted to states with valid observations in all the editions of the Profile of State-Chartered Banking from 1981 to 2004/2005. The states included are AL, CA, DE, FL, GA, IA, ID, IL, MI, MT, NC, ND, NJ, NM, OH, OK, OR, PA, TN and WA. The 2000 edition of the profile does not include data on examinations of state-chartered banks.

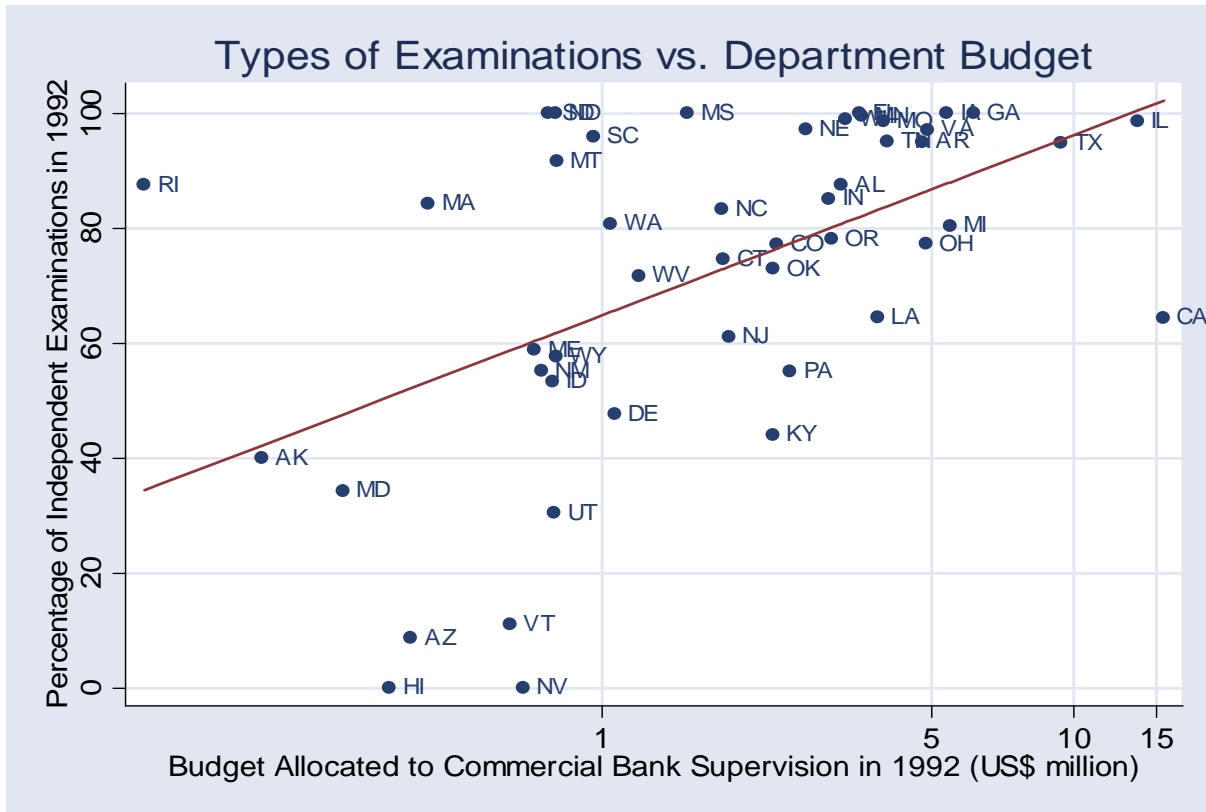
Figure 3
Cooperative Examination Programs with Federal Regulators



Note: The data used in the figure are restricted to states with valid observations in all the editions of the Profile of State-Chartered Banking from 1981 to 2004/2005. The states included are AK, AL, AR, AZ, CA, CO, CT, DE, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WV AND WY. The 2004 edition of the Profile does not include data on participation in cooperative examination programs.

Figure 4

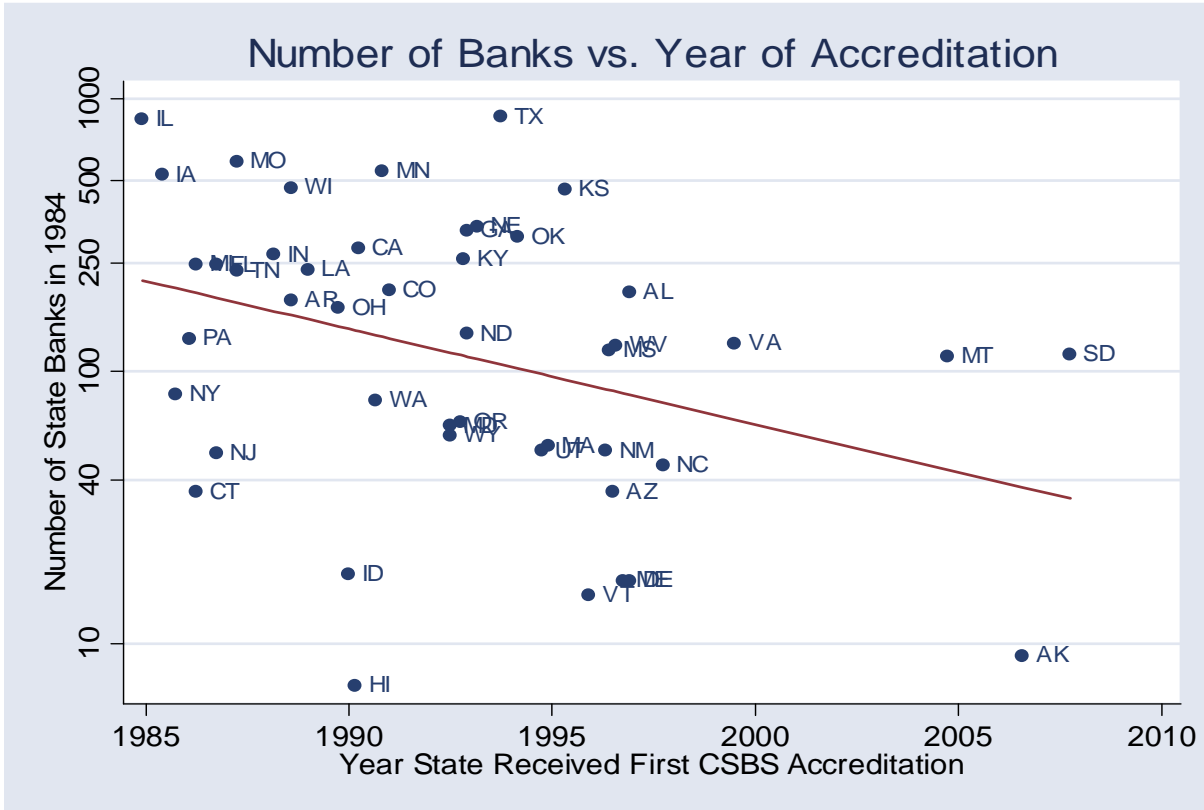
Percentage of Examinations in 1992 and Budget Allocated to Supervision



Note: Accreditation data were obtained from www.csbs.org. The data do not contain information on the budget allocated to commercial bank supervision for NH and NY in 1992.

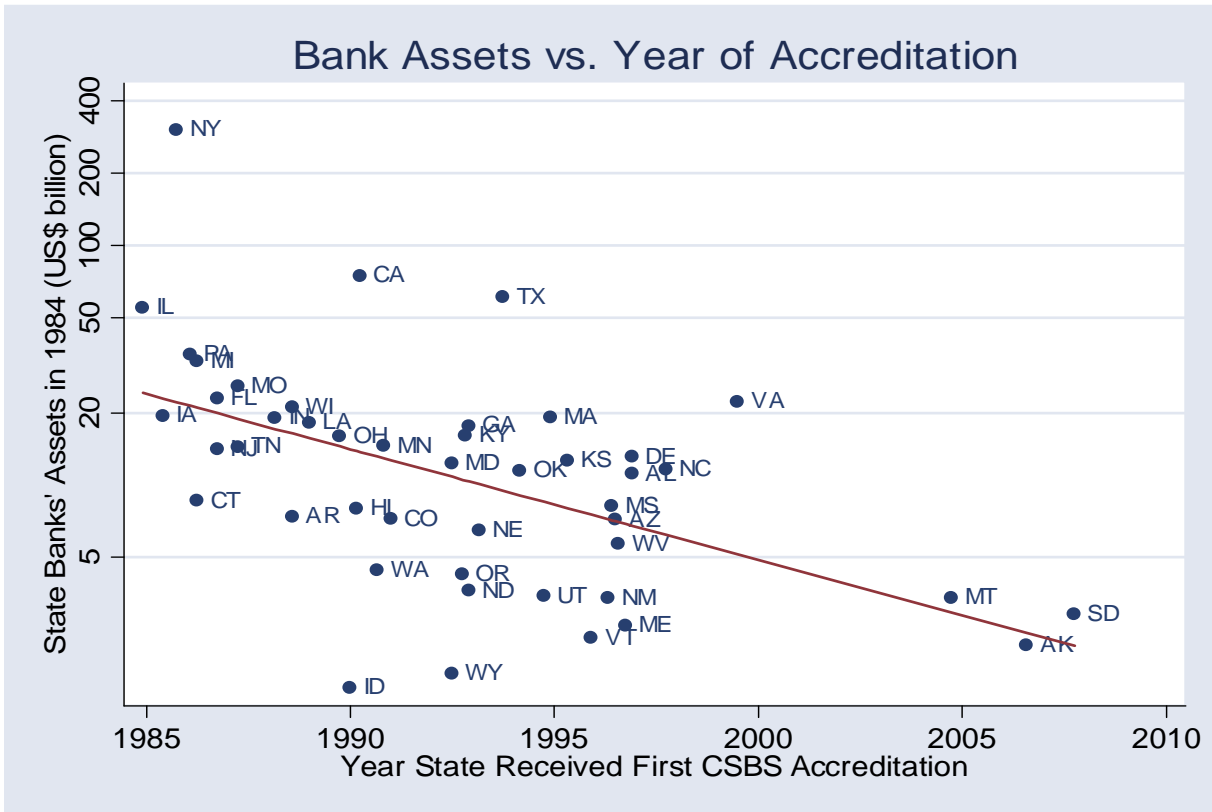
Figure 5

Number of State Banks in 1984 and Year of First Accreditation



Note: Accreditation data were obtained from www.csbs.org. DC, NV, NH, RI and SC had not been accredited yet as of November 2009.

Figure 6
State Banks' Assets in 1984 and Year of First Accreditation



Note: Accreditation data were obtained from www.csbs.org. DC, NV, NH, RI and SC had not been accredited yet as of November 2009.

Table 1: Summary Statistics

Variable	Mean	Std. Dev.	Min	Max	Num. Obs.
Independent Examinations	98.37	132.69	0	1156	450
Joint Examinations with the FDIC	8.29	18.77	0	203	482
Joint Examinations with the Fed	3.41	10.46	0	182	481
Concurrent Examinations with the FDIC	5.80	16.49	0	211	483
Concurrent Examinations with the Fed	2.04	7.49	0	97	477
Number of State Member Banks	21.63	22.04	1	103	495
Number of Nonmember Banks	146.32	154.92	3	788	495
Median Assets of State Member Banks (million)	785	3,674	10	40,445	495
Median Assets of Nonmember Banks (million)	116	366	16	6,779	495
90th Percentile Assets of State Member Banks (million)	3,445	11,118	14	102,858	495
90th Percentile Assets of Nonmember Banks (million)	596	1,186	50	13,419	495
Budget of State Banking Department (million)	5.39	6.95	0.43	71.42	390
Allocated to Commercial Bank Supervision (million)	3.15	2.98	0.01	18.35	350
Simulated Revenues from Assessment Fees (million)	5.08	6.65	0.13	54.49	495
CSBS Accreditation	0.48	0.50	0	1	495
Intrastate Branching Permitted	0.78	0.41	0	1	495
Interstate Branching Permitted	0.71	0.45	0	1	495
Personal Income (billion)	132.50	156.24	7.67	1,133.10	485
Examiner Salary	35,433	7,433	21,169	67,096	303
State Member Bank Failures and Assistance	0.09	0.48	0	6	495
State Nonmember Bank Failures and Assistance	0.64	2.43	0	31	495
Cooperative Program with the FDIC	0.80	0.40	0	1	178
Cooperative Program with the Fed	0.75	0.43	0	1	178
Required Frequency of Examinations (years/exam)	1.63	0.51	1	3	181
FDIC or Fed Examination Acceptable in Lieu of State	0.90	0.29	0	1	220

Note: Variables in US\$ were deflated using the GDP deflator and normalized by the year 2000 values.

Table 2: Determinants of the Number of Examinations without State Fixed Effects

Variable	All Examinations	Independent Examinations			Joint or Concurrent Examinations		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Number of Nonmember Banks	0.627 (0.053)***	0.730 (0.111)***	0.795 (0.116)***	0.524 (0.156)***	0.193 (0.209)	0.174 (0.198)	0.485 (0.257)*
Number of State Member Banks	0.082 (0.034)**	0.103 (0.066)	0.100 (0.073)	0.024 (0.066)	0.170 (0.111)	0.169 (0.111)	0.310 (0.095)***
Median Assets of Nonmember Banks	0.016 (0.070)	-0.102 (0.151)	-0.015 (0.202)	-0.016 (0.193)	0.294 (0.228)	0.340 (0.231)	0.385 (0.227)*
90th Assets of Nonmember Banks	0.000 (0.064)	0.005 (0.137)	-0.005 (0.153)	-0.134 (0.131)	0.064 (0.189)	0.096 (0.179)	0.261 (0.157)
Median Assets of State Member Banks	0.128 (0.071)*	0.301 (0.116)	0.169 (0.099)*	0.136 (0.096)	0.012 (0.131)	0.029 (0.109)	0.019 (0.098)
90th Assets of State Member Banks	-0.098 (0.031)***	-0.187 (0.052)***	-0.145 (0.049)***	-0.152 (0.048)***	0.059 (0.101)	0.090 (0.091)	0.138 (0.103)
Commercial Bank Supervision Budget	0.121 (0.057)**	0.294 (0.118)**			-0.231 (0.121)*		
Budget of State Banking Department			0.300 (0.138)**			-0.032 (0.223)	
Simulated Revenues from Assessment Fees				0.413 (0.162)**			-0.574 (0.244)**
CSBS Accreditation	0.031 (0.077)	0.080 (0.119)	0.057 (0.118)	0.158 (0.111)	-0.134 (0.278)	-0.172 (0.251)	-0.075 (0.191)
Intrastate Branching Permitted	-0.088 (0.092)	0.095 (0.125)	0.038 (0.163)	0.031 (0.154)	-0.172 (0.271)	-0.137 (0.272)	-0.185 (0.266)
Interstate Branching Permitted	-0.019 (0.074)	-0.170 (0.128)	-0.321 (0.136)**	-0.283 (0.132)	0.261 (0.267)	0.223 (0.258)	0.186 (0.258)
Personal Income	0.097 (0.040)**	0.017 (0.084)	0.011 (0.100)	0.128 (0.089)	0.267 (0.144)*	0.100 (0.185)	0.192 (0.124)
Number of Observations	323	334	371	425	274	310	400
R-squared	0.836	0.741	0.734	0.728	0.186	0.213	0.233

Note: All regressors are the natural logarithms of the respective variable with the exception of dummy variables and of terminated and failed banks, for which the natural logarithm of the respective variable plus one is used because of the large number of observations with a value of zero.

All specifications include year fixed effects. Standard errors are clustered by states. Robust standard errors are in parenthesis.

*, ** and *** denote significant at the 10, 5 and 1 percent level, respectively.

Table 3: Determinants of the Number of Examinations

Variable	All Examinations	Independent Examinations	Joint or Concurrent Examinations	Joint or Concurrent with the FDIC	Joint or Concurrent with the Fed
Number of Nonmember Banks	0.740 (0.151)***	0.577 (0.204)***	0.880 (0.290)***	0.854 (0.313)***	0.071 (0.338)
Number of State Member Banks	-0.057 (0.067)	0.023 (0.089)	0.119 (0.127)	-0.048 (0.133)	0.670 (0.143)***
Median Assets of Nonmember Banks	0.044 (0.101)	0.113 (0.213)	-0.305 (0.224)	-0.308 (0.216)	-0.239 (0.304)
90th Assets of Nonmember Banks	0.093 (0.084)	-0.028 (0.116)	0.583 (0.157)***	0.588 (0.174)***	0.278 (0.153)*
Median Assets of State Member Banks	-0.053 (0.072)	-0.005 (0.093)	-0.059 (0.101)	-0.099 (0.114)	-0.023 (0.107)
90th Assets of State Member Banks	-0.058 (0.036)	-0.067 (0.043)	-0.060 (0.061)	-0.055 (0.069)	0.007 (0.059)
Commercial Bank Supervision Budget	0.034 (0.068)	0.022 (0.066)	-0.057 (0.120)	-0.107 (0.115)	0.181 (0.166)
CSBS Accreditation	0.127 (0.070)*	0.016 (0.098)	0.083 (0.174)	0.020 (0.178)	-0.188 (0.219)
Intrastate Branching Permitted	-0.147 (0.072)**	-0.085 (0.091)	0.150 (0.187)	-0.135 (0.204)*	0.206 (0.195)
Interstate Branching Permitted	-0.191 (0.086)**	-0.240 (0.121)**	-0.023 (0.193)	0.025 (0.245)	-0.103 (0.187)
Personal Income	-0.003 (0.310)	-1.359 (0.600)**	1.517 (0.825)*	1.543 (0.928)*	1.140 (0.803)
Number of Observations	323	334	274	261	223
R-squared	0.884	0.861	0.727	0.717	0.724

Note: All regressors are the natural logarithms of the respective variable with the exception of dummy variables and of terminated and failed banks, for which the natural logarithm of the respective variable plus one is used because of the large number of observations with a value of zero.

All specifications include state and year fixed effects. Robust standard errors are in parenthesis.

*, ** and *** denote significant at the 10, 5 and 1 percent level, respectively.

Table 4: Determinants of the Number of Independent Examinations

Variable	(1)	(2)	(3)	(4)	(5)
Number of Nonmember Banks	0.358 (0.230)	0.320 (0.229)	0.366 (0.198)*	0.570 (0.207)***	0.651 (0.222)***
Number of State Member Banks	0.004 (0.079)	0.049 (0.091)	0.067 (0.078)	0.020 (0.089)	0.103 (0.121)
Median Assets of Nonmember Banks	-0.012 (0.212)	-0.067 (0.184)	-0.056 (0.239)	0.110 (0.214)	0.000 (0.222)
90th Assets of Nonmember Banks	0.005 (0.118)	0.018 (0.106)	-0.141 (0.135)	-0.028 (0.116)	-0.035 (0.121)
Median Assets of State Member Banks	-0.033 (0.066)	-0.039 (0.060)	-0.032 (0.071)	-0.006 (0.093)	0.024 (0.096)
90th Assets of State Member Banks	-0.060 (0.040)	-0.031 (0.037)	-0.031 (0.037)	-0.066 (0.043)	-0.083 (0.045)*
Commercial Bank Supervision Budget			0.046 (0.054)	0.025 (0.068)	0.059 (0.067)
Budget of State Banking Department	0.113 (0.104)				
Simulated Revenues from Assessment Fees		-0.074 (0.154)			
CSBS Accreditation	-0.020 (0.091)	0.037 (0.088)	0.135 (0.087)	0.018 (0.097)	0.028 (0.120)
Intrastate Branching Permitted	-0.167 (0.108)	-0.111 (0.116)	-0.060 (0.100)	-0.074 (0.096)	-0.063 (0.121)
Interstate Branching Permitted	-0.261 (0.123)**	-0.287 (0.122)**	-0.052 (0.083)	-0.234 (0.125)*	-0.258 (0.157)
Personal Income	-1.268 (0.564)**	-1.091 (0.551)**	-0.446 (0.855)	-1.346 (0.593)**	-1.700 (0.679)**
Examiner Salary			0.124 (0.202)		
State Bank Failures and Assistance				0.029 (0.070)	
Number of Observations	371	425	193	334	265
R-squared	0.859	0.840	0.962	0.861	0.860

Note: All regressors are the natural logarithms of the respective variable with the exception of dummy variables and of terminated and failed banks, for which the natural logarithm of the respective variable plus one is used because of the large number of observations with a value of zero.

All specifications include state and year fixed effects. Robust standard errors are in parenthesis.

*, ** and *** denote significant at the 10, 5 and 1 percent level, respectively.

Table 5: Determinants of the Number of Examinations with the FDIC

Variable	(1)	(2)	(3)	(4)	(5)
Number of Nonmember Banks	0.919 (0.320)***	1.255 (0.311)***	1.311 (0.639)**	0.843 (0.316)***	1.040 (0.356)***
Number of State Member Banks	-0.052 (0.132)	0.048 (0.117)	-0.051 (0.174)	-0.053 (0.133)	-0.098 (0.153)
Median Assets of Nonmember Banks	-0.151 (0.217)	0.003 (0.212)	0.261 (0.339)	-0.297 (0.219)	-0.549 (0.305)*
90th Assets of Nonmember Banks	0.486 (0.157)***	0.452 (0.152)***	0.888 (0.339)***	0.589 (0.177)***	0.626 (0.202)***
Median Assets of State Member Banks	0.004 (0.087)	0.010 (0.078)	-0.037 (0.201)	-0.099 (0.114)	-0.187 (0.136)
90th Assets of State Member Banks	0.010 (0.063)	0.047 (0.062)	0.064 (0.074)	-0.050 (0.068)	-0.004 (0.075)
Commercial Bank Supervision Budget			-0.378 (0.102)***	-0.103 (0.115)	-0.070 (0.164)
Budget of State Banking Department	-0.136 (0.205)				
Simulated Revenues from Assessment Fees		-0.387 (0.229)*			
CSBS Accreditation	0.099 (0.171)	0.050 (0.149)	-0.345 (0.259)	0.039 (0.180)	0.063 (0.210)
Intrastate Branching Permitted	-0.034 (0.199)	-0.134 (0.192)	-0.271 (0.339)	-0.094 (0.210)	-0.042 (0.238)
Interstate Branching Permitted	0.010 (0.214)	0.084 (0.209)	0.000 (0.297)	0.029 (0.245)	0.180 (0.247)
Personal Income	1.300 (0.847)	1.234 (0.713)*	1.620 (1.704)	1.613 (0.922)*	2.211 (1.071)**
Examiner Salary			0.514 (0.757)		
State Bank Failures and Assistance				0.083 (0.102)	
Number of Observations	297	381	147	261	197
R-squared	0.680	0.633	0.820	0.718	0.711

Note: All regressors are the natural logarithms of the respective variable with the exception of dummy variables and of terminated and failed banks, for which the natural logarithm of the respective variable plus one is used because of the large number of observations with a value of zero.

All specifications include state and year fixed effects. Robust standard errors are in parenthesis.

*, ** and *** denote significant at the 10, 5 and 1 percent level, respectively.

Table 6: Determinants of the Number of Examinations with the Fed

Variable	(1)	(2)	(3)	(4)	(5)
Number of Nonmember Banks	0.082 (0.324)	0.267 (0.305)	-0.276 (0.631)	0.098 (0.341)	0.835 (0.392)**
Number of State Member Banks	0.642 (0.119)***	0.579 (0.098)***	0.527 (0.187)***	0.673 (0.144)***	0.699 (0.171)***
Median Assets of Nonmember Banks	-0.134 (0.234)	0.039 (0.224)	-0.203 (0.473)	-0.235 (0.300)	0.632 (0.446)
90th Assets of Nonmember Banks	0.205 (0.132)	0.152 (0.114)	0.160 (0.396)	0.275 (0.153)*	0.603 (0.218)***
Median Assets of State Member Banks	0.012 (0.065)	0.040 (0.058)	0.119 (0.164)	-0.023 (0.106)	0.151 (0.136)
90th Assets of State Member Banks	-0.020 (0.048)	-0.036 (0.049)	0.009 (0.085)	0.002 (0.059)	0.001 (0.078)
Commercial Bank Supervision Budget			0.386 (0.246)	0.174 (0.168)	0.316 (0.223)
Budget of State Banking Department	0.416 (0.195)**				
Simulated Revenues from Assessment Fees		0.083 (0.259)			
CSBS Accreditation	-0.236 (0.191)	-0.179 (0.158)	-0.435 (0.337)	-0.200 (0.219)	-0.173 (0.279)
Intrastate Branching Permitted	0.121 (0.175)	-0.071 (0.154)	0.063 (0.355)	0.180 (0.198)	0.492 (0.234)**
Interstate Branching Permitted	-0.252 (0.201)	-0.264 (0.196)	-0.070 (0.239)	-0.092 (0.187)	-0.145 (0.224)
Personal Income	0.999 (0.746)	0.460 (0.622)	0.181 (1.911)	1.104 (0.798)	1.289 (0.998)
Examiner Salary			-0.384 (0.681)		
State Bank Failures and Assistance				-0.075 (0.113)	
Number of Observations	252	331	125	223	162
R-squared	0.723	0.696	0.768	0.725	0.753

Note: All regressors are the natural logarithms of the respective variable with the exception of dummy variables and of terminated and failed banks, for which the natural logarithm of the respective variable plus one is used because of the large number of observations with a value of zero.

All specifications include state and year fixed effects. Robust standard errors are in parenthesis.

*, ** and *** denote significant at the 10, 5 and 1 percent level, respectively.

Table 7: Determinants of the Fraction of Joint among All Examinations with a Federal Regulator

Variable	with the FDIC			with the Fed		
	(1)	(2)	(3)	(4)	(5)	(6)
Number of Nonmember Banks	0.068 (0.154)	0.060 (0.130)	-0.005 (0.128)	0.105 (0.178)	-0.014 (0.159)	-0.170 (0.148)
Number of State Member Banks	0.086 (0.051)*	0.100 (0.044)**	0.326 (0.043)	0.077 (0.070)	0.113 (0.056)**	0.054 (0.047)
Median Assets of Nonmember Banks	0.093 (0.096)	0.093 (0.087)	-0.070 (0.087)	-0.103 (0.151)	-0.084 (0.123)	-0.210 (0.103)**
90th Assets of Nonmember Banks	-0.068 (0.075)	-0.066 (0.062)	-0.029 (0.058)	0.018 (0.086)	-0.053 (0.082)	-0.048 (0.060)
Median Assets of State Member Banks	-0.006 (0.043)	0.018 (0.032)	0.021 (0.032)	-0.059 (0.054)	-0.030 (0.036)	-0.049 (0.030)
90th Assets of State Member Banks	-0.027 (0.025)	-0.033 (0.023)	-0.034 (0.023)	-0.013 (0.034)	-0.014 (0.029)	-0.005 (0.027)
Commercial Bank Supervision Budget	-0.029 (0.063)			-0.069 (0.078)		
Budget of State Banking Department		0.048 (0.084)			0.011 (0.096)	
Simulated Revenues from Assessment Fees			0.153 (0.097)			0.119 (0.106)
CSBS Accreditation	-0.138 (0.075)*	-0.152 (0.069)**	-0.186 (0.059)***	-0.154 (0.089)*	-0.190 (0.080)**	-0.231 (0.068)***
Intrastate Branching Permitted	0.141 (0.086)	0.152 (0.077)*	0.153 (0.074)**	0.025 (0.086)	0.069 (0.076)	0.019 (0.074)
Interstate Branching Permitted	0.045 (0.100)	0.041 (0.090)	0.050 (0.094)	-0.041 (0.116)	-0.015 (0.110)	0.003 (0.106)
Personal Income	-0.380 (0.386)	-0.310 (0.335)	-0.186 (0.294)	-0.375 (0.388)	-0.239 (0.379)	-0.171 (0.312)
Number of Observations	261	297	381	223	252	331
R-squared	0.697	0.685	0.628	0.712	0.701	0.664

Note: All regressors are the natural logarithms of the respective variable with the exception of dummy variables and of terminated and failed banks, for which the natural logarithm of the respective variable plus one is used because of the large number of observations with a value of zero.

All specifications include state and year fixed effects. Robust standard errors are in parenthesis.

*, ** and *** denote significant at the 10, 5 and 1 percent level, respectively.