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DOES MONETARY POLICY AFFECT THE CENTRAL BANK'S ROLE IN BANK SUPERVISION?

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Discussion paper

Does Monetary Policy Affect the Central Bank's Role in Bank Supervision?

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Abstract

This paper examines whether monetary policy responsibilities alter the central bank's role as a bank supervisor. The analysis focuses on the U.S., where the FED shares supervisory duties with two other federal agencies, the OCC and the FDIC. Among these three institutions, the FED is the only one responsible for monetary policy. Hence, using banks supervised by the FDIC and the OCC as a control group, the FED's supervisory behavior is compared with the behavior of the other two agencies. The comparison is made using a new panel dataset that includes all insured commercial and savings banks in the U.S. and all formal regulatory actions issued against these institutions during the period 1990:I- 1998:IV. The results suggest that the FED's monetary policy responsibilities do alter its bank supervisory behavior: indicators of monetary policy affect the supervisory actions of the FED, but do not affect the actions of the other two agencies. Moreover, the scenario in which the FED uses bank supervision to reinforce the objectives of monetary policy is rejected.

Keywords: Central Banking; Bank Supervision; Monetary Policy
JEL classification: E52; E58; G21; G28

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1 Introduction

In most countries, the central bank performs an important role in the management of the financial system. However, since the main task of the central bank is to preserve the value of the currency, the assignment of other "optional tasks", such as bank supervision, has been at the center of a policy debate. For instance, policymakers in Japan recently removed their central bank from its role in bank supervision. The Bank of England lost its supervisory duties in 1997, while at the moment, the European Central Bank has no such role. In the U.S., where the Federal Reserve (FED) has only partial responsibility for the supervision of banks, in 1994 there was a proposal to the Congress to consolidate all supervisory duties under a new single federal regulator, separate from the FED.

In spite of its importance, this topic has not yet received sufficient treatment in the economics literature. Only a few recent papers have investigated the positive and negative aspects of a combined regime.[1] Given that a sound theoretical analysis is still on the research agenda, these studies are mainly empirical, trying to establish whether the central bank's supervisory duties affect monetary policy and vice versa.

Most of these studies provide only indirect evidence of such cross-effects. For example, Heller (1991), Goodhart and Shoenmaker (1992), and Di Noia and Di Giorgio (1999) compare the inflation rates achieved by central banks with and without bank supervisory duties. They find that countries with central banks that have supervisory responsibilities experience higher inflation rates, and interpret this as evidence supporting the "conflict of interest" hypothesis. However, higher inflation rates under a combined regime are not necessarily the result of the central bank being distracted by supervisory considerations. In addition, cross-country comparisons are naturally impaired by differences across countries in the structure of their financial systems as well as differences in the timing and magnitude of their business cycles. The same concerns apply for cross-country comparisons of bank failure rates under the two alternative regimes (Goodhart and Shoenmaker,

[1] See, for example, Di Noia and Di Giorgio (1999), Goodhart and Shoenmaker (1992 and 1995), Heller (1991), Haubrich (1996), Peek, Rosengren and Tootell (1999), and Tuya and Zamalloa (1994).

1992 and 1995).

The study by Peek, Rosengren and Tootell (1999) takes a different approach. Using confidential bank rating data for the U.S., the authors find that information obtained from bank supervision helps the central bank to conduct monetary policy more effectively. This finding provides an important reason why monetary and supervisory functions should not be separated. Moreover, since their analysis is limited to the U.S. economy, it is not subject to the same problems of previous cross-country studies.

Returning to the debate about whether the central bank should retain its bank supervisory duties, no answer should be given before examining the effect of monetary policy on bank supervision. Even if supervisory information improves the performance of monetary policy, it is not clear that the central bank should retain its supervisory duties if these duties harm its role as a bank supervisor. For example, Goodhart and Shoenmaker (1992) argue that the cyclical effects of regulatory and monetary policy are usually in conflict. Monetary policy is known to be countercyclical, while the effects of supervision are usually procyclical (offsetting, to some extent, the objectives of monetary policy).[2] Thus, the pressures arising from this conflict may cause regulators to relax their supervision when monetary policy is expansionary.

This paper examines whether and how monetary policy duties affect the central bank's role in bank supervision. To address this question, this study exploits the segmented structure of the U.S. bank regulatory and supervisory system. Specifically, all insured commercial and savings banks in the U.S. have one of the following agencies as their primary federal regulator: the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC), or the Federal Reserve System (FED). While the FED's primary responsibility is to conduct monetary policy, the other two agencies have no such duty. Hence, using the FDIC and the OCC as a control group, the supervisory behavior of the FED is compared with the behavior of the other two agen-

[2]For example, the slow recovery from the 1990 U.S. recession was attributed by many researchers to a dramatic decrease in the supply of bank loans caused by increased capital requirements and more stringent regulatory practices (see Bernanke and Lown, 1991; Berger and Udell, 1994; Berger, Kashyap and Scalise, 1995; Hancock, Laing and Wilcox, 1995; and Peek and Rosengren, 1995a).

cies. The analysis focuses on a particular aspect of bank supervision: the imposition of formal regulatory actions (i.e., cease and desist orders and written agreements) against banks in financial distress. This is an important aspect of bank supervision for which data can be constructed using publicly available information.

In order to perform this comparison, a unique and rich dataset is created. Information collected from the formal action documents is combined with bank-level indicators of financial performance (constructed using the Call Report Data) and indicators of the aggregate and regional economy. The resulting unbalanced panel includes the "universe": all U.S. insured commercial and savings banks and all formal actions issued against these types of institutions during the period 1990:I-1998:IV. Data availability dictates the sample's starting point. In particular, formal actions (a crucial ingredient for the analysis) have been disclosed only since late 1989.

The estimation results suggest that the FED's monetary policy responsibilities do alter its bank supervisory behavior. In particular, indicators of monetary policy affect the supervisory actions of the FED but do *not* affect the actions of the FDIC and the OCC. Since indicators of monetary policy matter only for the FED, it is unlikely that they simply capture the effect of the business cycle on bank supervision. If that were the case, they would matter for all three supervisors and not just for the FED. However, the scenario expressed by Goodhart and Shoenmaker (1992), in which the FED uses its role in bank supervision to reinforce or protect the objectives of monetary policy, is rejected. In fact, when the federal funds rate increases, the FED becomes less strict in bank supervision. This implies that the FED tries to mitigate the tax-effect of higher interest rates on banks by going easier on regulatory intervention.

The paper is organized as follows. Section two reviews the main arguments developed in the literature for and against the separation of the monetary and supervisory functions. Description and evaluation of existing empirical findings are also provided. Section three describes in detail the methodology and data used in this study, while section four describes and evaluates the estimation results. Conclusions follow in section five.

2 Theoretical Arguments and Empirical Evidence

2.1 Arguments Against Separation

The major argument for combining the monetary and supervisory functions is linked to the central bank's concern for the "systemic stability" of the financial system (Goodhart and Shoenmaker, 1992 and 1995). Discussions focus on when it is considered appropriate for the central bank to provide lender-of-last-resort (LOLR) facilities, and whether a LOLR role should be accompanied by supervisory duties to reduce moral hazard.

On the grounds of moral hazard, it is appropriate to provide LOLR facilities when a bank is illiquid, but not insolvent (e.g., Bagehot, 1873; Humphrey, 1975). Hence, if the central bank supervises an institution, it may know more precisely whether an institution asking for credit from the LOLR is insolvent or just illiquid. Moreover, the micro-information obtained from supervision is particularly useful during financial crises, when only direct supervision can deliver the essential information in time.[3] Goodhart and Shoenmaker (1992), using a cross-country micro-database, found that countries where central banks are involved in supervision have significantly fewer bank failures.

As they pointed out, this finding entails no welfare implications: it is not clear whether the cost of a bank failure compensates for the efficiency loss in resource allocation and other costs linked to the bail out. Goodhart and Shoenmaker (1995) went on to examine the method adopted to deal with failing banks and the resulting choice of funding. They documented no significant difference between the combined and separated regimes for the method of dealing with a failing bank. Yet, comparisons among banks of different countries are inevitably flawed due to differences in legal and accounting procedures, as well as differences in the timing and magnitude of the business cycle.

Another fundamental argument supporting a unified agency regime is the protection of the payments system. In net settlement systems, participants send payment instruc-

[3] The speed and the degree with which the condition of a financial institution deteriorates is significantly higher during periods of financial instability. Moreover, it is in "bad" times that institutions have the strongest incentives to "cook" their books and hide their true condition.

tions over a period of time, with the settlements occurring only at the end of this period. As financial institutions extend credit to each other, they expose themselves to significant credit risk. If one or more of them fail to settle their debit positions, the non-defaulting members have to cover the shortfall based on some kind of loss-sharing agreement (possibly backed by collateral posted at the clearing house). This may weaken significantly the non-defaulting members.[4] In that case, the central bank as a LOLR may feel compelled to support the failing participants to avoid systemic "knock-on" effects (Goodhart and Shoenmaker, 1992). Hence, the central bank assumes part of the liquidity risk of the settlement and becomes effectively an "implicit guarantor" of the system.

Despite the growing chorus of academics deploring such rescues on grounds of moral hazard[5], there is no evidence that authorities are becoming more willing to accept bank failures (e.g., recent events in Japan). Therefore, to the extent that the central bank continues to operate the payments system and act as a LOLR, it is likely that it will want to maintain some regulatory and supervisory functions in order to limit such risks.

A recent paper by Peek, Rosengren and Tootell (1999) takes a different approach. They argue that information obtained from bank supervision could improve the accuracy of economic forecasting, and thus help the central bank to conduct monetary policy more effectively. For example, problems in the banking sector may serve as an early indicator of deteriorating macroeconomic conditions. In addition, supervisory information could provide advance notice of changes in bank lending behavior.[6] Using confidential micro-data for the U.S., they found that supervisory information (based on CAMEL ratings) can and does help the FED to conduct monetary policy.

While this evidence shows that the monetary authority should have access to supervisory information, it does not establish that the FED should be the supervisor. The FED could simply request CAMEL ratings from the agency doing the supervision. However, Peek, Rosengren and Tootell (1999) argue that effective use of this information may be

[4] They may be able to settle at the end of a given cycle and unable to open for business the next day.

[5] See, for example, Benston et al. (1986), Kane (1992), and White (1984).

[6] This argument assumes that the "lending channel" of monetary policy is operative (see, for example, Bernanke and Gertler, 1995; Hubbard, 1995b; and Kashyap, Stein and Wilcox, 1993).

very difficult in practice. In particular, the assessment of a bank's health and the information used may depend on the objective function of the agency doing the supervision. Differences in objectives could lead to the collection and emphasis of different information. It may also affect the way CAMEL ratings are assigned. For example, during the Third-World debt crisis, some banks that were perceived as "too big to fail" may have received better CAMEL ratings than their true condition warranted. Thus, in order to effectively use the bank supervisory information, the FED should not only know the aggregate ratings, but whether and for which institutions forbearance is occurring. The latter implies a direct supervisory role for the central bank.

2.2 Arguments for Separation

The most common argument for separating monetary policy responsibilities from the bank supervisory responsibilities is that the combination of functions may lead to a "conflict of interest". Goodhart and Schoenmaker (1992 and 1995) argue that a "conflict of interest" may emerge between the monetary authority, that desires higher interest rates (e.g., to fight inflation or to maintain an exchange rate peg), and the supervisory authority, that is concerned about the adverse effects of higher interest rates on the solvency and profitability of the banking sector. In addition, the combination of functions may lead to expectations on the part of the private sector (when setting prices) that the central bank's monetary policy may be affected by financial stability considerations.

Unfortunately, with discussions usually internalized within the central bank, it is very difficult to document whether or the extent to which interest rates were indeed kept lower than they would have been otherwise. However, there were a number of cases where it was argued that interest rates were held down because of concerns about the financial sector.[7] According to Vittas (1992), during the 1980s and the beginning of the 1990s, U.S. interest rates were kept low because of the severe problems of the Savings and Loan

[7] The effect of high interest rates on the profitability of the banking system depends on how long interest rates are held high and on the balance sheet structure of the banking system (i.e., the repricing and maturity structure of the asset and liability sides of their balance sheets).

Associations.[8] Furthermore, it is widely believed that in 1982 Fed Chairman Volcker was under pressure to abandon the non-borrowed reserve scheme because of the effects of interest rate volatility upon the problems with less developed countries (LDC) debt and the solvency of major U.S. commercial banks.

To empirically test the "conflict of interest" hypothesis, Heller (1991) and Goodhart and Shoenmaker (1992) compared the track record of central banks with and without supervisory duties in achieving the central goal of monetary policy (i.e., low inflation rates). They found that central banks without supervisory responsibilities have a better inflation track record. However, as Heller (1991) pointed out "it may well be that independent central banks are better in attaining the goal of price stability and that these independent banks do not tend to have supervisory responsibilities". It turns out that even after controlling for central bank independence,[9] central banks without supervisory duties achieve lower inflation rates. Nevertheless, cross-country comparisons at a macro level are inevitably flawed due to differences in the micro-structure of the financial systems and differences in the timing and magnitude of the business cycles.

A more general point made by Goodhart and Schoenmaker (1992) is that the cyclical effects of micro (regulatory) and macro (monetary) policy tend to be in conflict. Macro-monetary policy is usually countercyclical, while the effects of regulation and supervision tend to be procyclical. In particular, during periods of economic slowdown, the financial condition of banks is usually deteriorating. In this case, the bank's supervisor steps in and applies pressure on the institution to improve its condition. However, the bank's implementation of supervisory requirements results in even tighter credit during an economic recession. For instance, formal interventions (e.g., the issue of formal actions) have been found to have an immediate negative impact on new lending.[10] Following this line of argument, one might expect the central bank to use its supervisory role to complement monetary policy (i.e., when monetary policy is expansionary to be less strict

[8] There was a maturity mismatch between long-term loans at fixed rates and short-term liabilities.

[9] Using the index of central bank independence derived by Grilli, Masciandaro and Tabellini (1991).

[10] For example, Peek and Rosengren (1995b) found that banks under formal actions decrease new lending by 1.9% per quarter.

in supervision and vice versa). As discussed in section five, this hypothesis is rejected.

3 The Empirical Analysis

3.1 Methodology

Does the central bank's responsibility for monetary policy alter its behavior as a bank supervisor? This question can be addressed by taking advantage of the segmented structure of the U.S. bank regulatory and supervisory system. Specifically, all insured commercial and savings banks in the U.S. are primarily supervised by one of the following federal agencies: the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC), or the Federal Reserve System (FED). In particular, national banks are supervised by the OCC, while state banks are supervised either by the FDIC or by the FED.[11] However, among the three agencies, the FED is the only one responsible for monetary policy. Hence, if monetary policy duties alter the FED's role as a bank supervisor, the FED's supervisory actions would be affected by monetary policy considerations, while the actions of the other two agencies would not be.

The analysis focuses on a particular aspect of bank supervision which is publicly disclosed: the issuance of formal actions (FAs) against financially troubled institutions. When an institution is found (usually after an on-site examination) to have serious financial problems, its supervisor can intervene by imposing a FA to force the institution to correct the problems.[12] This type of intervention is based on the absolute and relative health of the institution. While examiners use standardized ratios to evaluate the condition of a bank, the same ratios may or may not trigger intervention, depending on the size of the bank and the condition of its economic environment. As the economic environment (both national and regional) deteriorates, a bank faces a greater probability

[11] The FED supervises state banks that choose to become members of the FED, while the FDIC is the primary supervisor of state nonmember banks.

[12] Since FAs are legally enforceable with civil monetary penalties for noncompliance, they are viewed as the most serious actions available to supervisors, short of closing the bank.

of failure, since the health of its borrowers and the value of any collateral securing loans deteriorate. Bank size may also be relevant. In the presence of asymmetric information, larger banks can absorb more risk, since it is easier for larger banks to raise additional funds if needed. Moreover, big banks are better able to diversify their loan portfolios. Thus, the probability of getting a FA is modeled as:

$$Prob(Y_{i,t} = 1) = F(\beta' X), \tag{1}$$

where $F(\cdot)$ is assumed to be the standard normal distribution. $Y_{i,t}$ is equal to one if the supervisor imposed a FA on bank i at time t, and is equal to zero otherwise. The matrix X includes indicators of the condition of bank i at time t and $t-k$, indicators of the prospects of the economic environment in which the bank operates, and bank size indicators. In addition, supervisory agency dummy variables are used to account for the possibility of systematic differences across agencies, either in supervisory standards or in the quality of banks supervised.

Following Peek and Rosengren (1995b), time t refers to the exam date that resulted in the imposition of a FA and not to the date that the action became effective (i.e., the sign date). If time t was referring to the sign date, the analysis would capture a different condition (most probably improved) from the one that triggered intervention by the bank's supervisor. In particular, supervisors decide to issue a FA based on the information they obtain during an examination. However, FAs become effective at least 60 to 90 days after the exam date and many over a year later. During this interim period, the institution knows that a FA is going to be issued against it. Hence, it is expected to start improving its condition even before the action is signed.

Moreover, $Y_{i,t}$ does not include observations of banks that at time t were already under a FA. Since the focus is on the conditions that determine the imposition of a FA, once a bank is under a FA, its subsequent observations until the action is terminated are dropped. If a bank is already under a FA, it can not receive another action of the same type before the first one is terminated.

3.2 Data Description

A pooled time-series and cross-sectional panel of all FDIC-insured commercial and savings banks in the U.S. is constructed in order to estimate equation (1). In particular, information collected from the FA documents is combined with bank-level indicators of financial performance and indicators of the aggregate and regional economy.

3.2.1 Formal Actions

The dataset covers the period 1990:I-1998:IV. Data availability regarding the dependent variable $Y_{i,t}$ determines the sample's starting point. Specifically, the date of the examination that resulted in the imposition of a FA is necessary for generating $Y_{i,t}$. These exam dates are reported in the FA documents, which have been disclosed only since the late 1989. In particular, the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989 made public all cease and desist orders (C&Ds) signed after August 9, 1989. The Crime Control Act of 1990 requires disclosure of all written agreements (WAs) signed after November 29, 1990.

To take advantage of C&Ds imposed during 1990, the sample begins in 1990:I, even if WAs signed prior to November 29, 1990, are not available. The estimation results would have been biased if banks that received a WA appeared in the data as if they did not (i.e., $Y_{i,t}$ equals 0 when it should equal 1). For this reason, termination documents are used to identify institutions that received a WA any time between January 1 and November 29, 1990.[13] These banks are then dropped for the period between 1990:I and the termination of the action. The same procedure is used to identify and eliminate any bank that entered the sample period with a FA in place. In addition, FAs issued because of violations of laws and regulations (and not because of deteriorating financial conditions) are eliminated.

Table 1 reports the number of C&Ds and WAs issued during the 1990:I-1998:IV

[13] The termination documents include the date the action was imposed (i.e., the sign date) and the date it was terminated. Unfortunately, examination dates are not reported.

period. Interestingly, 86% of the total 1013 FAs are imposed between 1990 and 1993, when the banking industry faced one of its worst crises since the Great Depression.

3.2.2 Bank-Level Data

Bank-level indicators of performance for all insured commercial and savings banks in the U.S. are constructed using the Consolidated Reports of Condition and Income (known as the Call Reports), available from the Federal Reserve Bank of Chicago. In order to create consistent time-series variables, this dataset involves a number of challenges (e.g., dealing with mergers, de novos, "shell" banks, and changes of definitions over time). The data appendix describes in detail the methods used to deal with these problems.

The indicators used to capture the health of an institution cover the areas in which examiners base their evaluations (see Table 2 for definitions and notation). For example, supervisors view capital adequacy as a key element in reducing bank risks. Banks need capital to absorb possible loan losses and provide the necessary funds for expansion. In addition, higher capital increases the stake of stockholders in the safe and sound operation of a bank, reducing moral hazard associated with deposit insurance. To evaluate capital adequacy, regulators look at three basic capital ratios: tier 1 capital to risk-weighted assets, total capital to risk-weighted assets, and tier 1 capital to average assets. The higher are these ratios, the lower the probability of receiving a FA, other things equal.

The asset quality of an institution is evaluated with respect to the degree of diversification of its loan portfolio, the severity of its credit-risk problems, and the adequacy of its loan loss reserves. Ratios of portfolio concentrations in risky types of loans reflect a potential exposure to excessive risk. For instance, if a particular sector of the economy is under stress (e.g., real estate), then banks with a loan portfolio that is highly concentrated in that sector will face an increased probability of failure. The ratio of nonperforming loans to total loans (or assets) provides an indicator of current and future credit-risk problems.[14] The ratio of other real estate owned to total loans reflects past

[14]The nonperforming loans series is calculated as loans that are 90 or more days past due plus loans that are in a nonaccrual status.

problems with credit-risk.[15] Thus, the higher are these ratios, the higher the probability of a FA.

Earnings ratios are evaluated with respect to: their ability to cover losses and provide adequate capital protection, the quality and composition of net income, and the degree of reliance on funds sensitive to interest rates. For example, the return on average assets (or on average equity) captures the ability of an institution to supply additional capital and meet possible losses. Therefore, the higher are these earnings ratios, the lower the probability of receiving a FA.

The liquidity of an institution is determined in relation to the maturity structure of its assets and liabilities. The availability of assets readily convertible into cash and the access to money markets or other sources of funds provide a remedy to the traditional "maturity mismatch" of a bank's assets and liabilities. The higher is the share of liquid assets to total assets, the lower the probability of receiving a FA.[16] In contrast, unstable or highly liquid deposits (e.g., brokered deposits) increase the probability of a liquidity problem, and therefore increase the probability of getting a FA.

Table 3 compares the average risk profile of three groups of banks: i) banks not under a FA, ii) banks at the exam date that resulted in a FA, and iii) banks under a FA at the time of the termination of the action. As expected, banks have a significantly worse risk profile at the time of the exam the resulted in a FA compared to banks that are not under a FA. In particular, they are less well capitalized, less profitable, have a less diversified loan portfolio, and have more liquid deposits. Moreover, a higher share of their loans is nonperforming and they have a lower loan loss reserves ratio. However, when the action is terminated, their average risk profile is significantly improved.

[15] The other real estate owned series is composed of real estate collateral from foreclosed loans.

[16] Liquid assets are calculated as the sum of interest-bearing balances due from depository institutions, average federal funds sold, securities purchased under agreement to resell, assets held in trading accounts (net of revaluation gains), and the market value of securities less the value of pledged securities.

3.2.3 Macro-Level Data

A crucial ingredient for estimating equation (1) is a good indicator of the stance of monetary policy. Unfortunately, there is no general consensus in the literature as to which variable is the best indicator. In fact, different variables have been proposed, such as the federal funds rate, non-borrowed reserves, and monetary aggregates.[17] Since the FED's operating procedures have varied over time, any single indicator of monetary policy is likely to be problematic in some periods. As Bernanke and Mihov (1995a) point out, "the federal funds rate, which was the best indicator of monetary policy prior to 1979, has become again during the tenure of Chairman Greenspan. However, the funds rate was not necessarily a good indicator of policy during the early to mid-1980's..."

Since the empirical exercise in this paper is limited to the 1990s, the federal funds rate is used. The Federal Reserve Board of Governors releases the funds rate at both daily and monthly frequencies, among others. The monthly series consists of the average of the daily figures during each month. Here, the monthly series is converted into a quarterly series using the observation for the last month of each quarter.[18] In this case, "spikes" in the funds rate (which happen occasionally for a day or two due to temporary reserve conditions) are averaged out during the month.

Indicators of the economic environment are used to control for the effect of the business cycle on the probability of receiving a FA. Specifically, real Gross Domestic Product, and national and state unemployment rates are taken respectively from the National Income and Product Accounts and the Bureau of Labor Statistics. The difference between national and state unemployment rates is used in order to capture the relative condition of the local economy. Finally, a set of regional dummy variables, based on census regions, is employed to account for systematic differences across regions.

[17] See Bernanke and Mihov (1998) for an excellent literature review on measuring monetary policy.

[18] Quarterly averages are also used to investigate robustness. As expected, the results are quantitatively the same with the results reported in Section 4.

4 Results

Table 4 provides estimation results for three different specifications of equation (1). The first column reports a benchmark regression. It includes bank-level indicators of financial performance, an indicator of bank size, dummy variables for the bank's primary federal supervisor, as well as regional and quarterly time dummies. All estimated coefficients on indicators of bank health and size are statistically significant and have the expected sign. This benchmark specification is comparable to Peek and Rosengren (1995b), who examined what determines the imposition of a FA using a similar framework but without considering any monetary policy aspect or differences across supervisors. The estimation results from this benchmark specification are in fact consistent with the findings of Peek and Rosengren (1995b).

The estimated coefficients on the supervisory agency dummies are significant, suggesting that there are systematic differences across supervisors in toughness, standards, or even in the quality of banks supervised not fully captured by other right-hand-side variables. Specifically, the estimated coefficient on the OCC dummy variable is positive, suggesting that banks supervised by the OCC are more likely to receive a FA than are banks supervised by the FED, other things equal. In contrast, the negative estimated coefficient for the FDIC dummy variable indicates that banks supervised by the FED are more likely to receive a FA than are banks supervised by the FDIC.

Regional and quarterly time dummies are used to capture the effects of the economic environment on the probability of receiving a FA. However, these variables account not only for the business cycle, but also for anything else that varies systematically across geographical regions and time. Hence, when an indicator of monetary policy is introduced in columns (2) (3), and (4) the quarterly dummy variables are replaced by the annual growth rate of real GDP and the difference between state and national rates of unemployment.

Specifically, in column (2) the federal funds rate is added in order to examine whether the stance of monetary policy affects the probability of supervisory intervention in trou-

bled banks. The estimated coefficient on the federal funds rate is negative and insignificant. It seems that after controlling for the health of an institution, the business cycle, the bank size, and the supervisor of a bank, the probability of a FA does not depend on the stance of monetary policy.

However, when the federal funds rate is interacted with supervisory dummy variables to allow for differential effects across supervisors (column 3) an interesting result emerges. Monetary policy affects the supervisory actions of the FED, but does not affect the actions of the other two agencies. In particular, the estimated coefficient on the federal funds rate for the FED is negative (-.0570) and highly significant. In contrast, the estimated coefficients for the OCC and the FDIC are highly insignificant and approximately equal to zero (.0045 for the OCC and .0046 for the FDIC).[19]

To investigate the robustness of this result with respect to indicators of the business cycle, the growth rate of real GDP is replaced by the annual change in the rate of national unemployment in Table 5. The results of are unchanged. The estimated coefficient on the federal funds rate is negative and highly significant for the FED, but is approximately zero and insignificant for the other two supervisors. This finding suggests that the FED's monetary policy responsibilities affect its role in bank supervision. Since the federal funds rate matters *only* for the FED, it is unlikely that it simply captures the effect of the business cycle. If it was picking up the business cycle, it would have been significant for all three supervisors (maybe with different coefficients) and not just for the FED.

In order to investigate this possibility, indicators of the business cycle are interacted with the supervisory dummy variables. In the first column of Table 6, the growth rate of real GDP is interacted with the FDIC, the OCC, and the FED dummy variables. The results suggest that the growth rate of real GDP matters for all three supervisors and not just for the FED. The same is true for the annual change of the national rate of

[19] This result is robust to other indicators of monetary policy that are known to perform well during the Greenspan period (e.g., the three-month treasury bill rate and the six-month less the three-month treasury bill rate). This is not surprising since short-term interest rates are highly correlated with each other. For this reason and because of space constraints, tables with these results are not shown, but are available upon request.

unemployment in column (2). In addition, hypothesis tests reject any differential effect across supervisors with respect to the business cycle (i.e., the estimated coefficients on the interacted terms are not statistically different from each other). These findings reinforce the evidence provided by Tables 4 and 5. Specifically, none of the business cycle indicators exhibit the characteristic of the estimated coefficients on the funds rate.

All evidence suggests that the central bank's monetary policy responsibilities do alter its role in bank supervision, at least for the U.S. during the sample period. This interpretation assumes that the causation runs from monetary policy to supervision and not vice versa. In other words, the independent variable, which captures the stance of monetary policy, is indeed exogenous to the dependent variable. Since the analysis uses a micro dataset, it is not unreasonable to argue that intervention in a single bank could not be causing changes to a national variable such as the funds rate.

The next logical step would be to examine the nature or direction of this causal link. In particular, the negative sign on the coefficient of the federal funds rate suggests that when the FED increases the funds rate, it becomes less strict in its bank supervisory role. One possible explanation is that the FED tends to be less strict on supervision in order to compensate banks for the extra pressure it puts on them by increasing the funds rate. An increase in the funds rate acts as an extra tax on banks, since it increases the opportunity cost of holding non-interest-bearing reserves. Moreover, given the maturity mismatch between the asset and liability sides of a bank's balance sheet, an increase in the interest rate affects adversely the net revenues from interest bearing assets and liabilities, at least in the short-run (i.e., it decreases the difference between the interest received from loans and the interest paid to depositors).

Given this additional pressure, the FED might be interested in compensating banks either because it views them as its constituency or because it is concerned about the micro-stability of the financial sector. After all, the FED is also responsible for maintaining the stability and the smooth functioning of the financial system. In addition, the negative sign on the coefficient of the federal funds rate indicates the FED is not using

its bank supervisory role to reinforce the objectives of monetary policy. If it were, the funds rate would enter with a positive sign (i.e., supervisors would relax their supervision when monetary policy is expansionary).

Although the discussion so far has focused on the main question of interest– whether the FED's responsibilities for monetary policy affect its behavior in bank supervision– Tables 4, 5, and 6 contain other interesting findings. For instance, all estimated coefficients on indicators of financial health and bank size are extremely robust across all specifications with respect to their sign, magnitude, and significance.

All indicators of bank health are highly significant and enter with the expected sign (i.e., the better the financial health of a bank, the lower the probability of intervention). For example, the estimated coefficients on the ratios of tier 1 capital to average assets ($Tier1/AvA$) and Tier 1 capital to risk-weighted assets ($Tier1/RWA$) are negative, indicating that the higher a bank's capital ratios, the lower the probability of a FA. This is consistent with the emphasis placed by supervisors on the capital adequacy of banks. Moreover, it seems that examiners base their evaluations not only on the capital position of a bank at a certain point in time, but also on its recent trend. In fact, the estimated coefficient on the annual change of $Tier1/AvA$ is negative, suggesting that the probability of a FA decreases as the bank's capital position improves.

The asset quality of an institution is evaluated using three general characteristics of assets: the degree of loan diversification, indicators of past and future problems with credit-risk, and the adequacy of loan loss reserves. Ratios of portfolio concentrations in high-risk types of loans reflect a potential exposure to excessive risk. In fact, the estimated coefficients on the ratios of real estate loans to total loans (REL/L) and commercial and industrial loans to total loans ($C\&I/L$) are positive.

The estimated coefficients on other real estate owned to total loans ($OREO/L$) are positive, since they capture past problems with credit-risk. Nonperforming loans to total loans (NPL/L) provide some indication of current and future loan portfolio problems and therefore increase the probability of a FA. However, the ratio of loan loss reserves

to total loans (LLR/L) could enter either with a negative or a positive sign. A negative sign should be expected if LLR/L captures the degree to which an institution takes precautions against future loan losses. However, a high LLR/L ratio could be an indicator of greater than normal problems with nonperforming loans and therefore increase the probability of supervisory intervention. In fact, the estimated coefficient on LLR/L is positive. Peek and Rosengren (1995b) report the same result.

Earnings ratios, such as the return on average assets (R/AvA), indicate the ability of an institution to supply additional capital and meet possible losses. Thus, the higher is R/AvA, the lower the probability of receiving a FA. In addition, unstable or highly liquid deposits, such as brokered deposits (BKD/A), increase the probability of liquidity problems and therefore increase the probability of supervisory intervention.

In all specifications, bank size is measured using the log of total assets ($\log Assets$). Its estimated coefficient is always negative and highly significant, indicating that the larger is the bank's size, the lower is the probability of receiving a FA. This result is consistent with at least two interpretations. One is that supervisors may intervene less in bigger banks simply because big banks can absorb more risk (e.g., because of better access to capital markets). The other is that big banks might be better able to "capture" their supervisors.

5 Conclusions

This paper examines whether and how monetary policy responsibilities affect the central bank's role as a bank supervisor. The methodology and the data employed improve upon previous studies in at least two ways. First, the paper escapes the usual criticisms of cross-sectional studies by limiting the analysis within a single country, the U.S. Furthermore, the U.S. bank regulatory and supervisory system is ideal because of its segmented structure. Second, the construction and use of a unique dataset on formal regulatory actions allows a direct test of the behavior of bank supervisors.

The estimation results indicate that the FED's monetary policy responsibilities do alter its bank supervisory role, at least for the U.S. during the sample period and for the particular aspect of bank supervision examined here. In particular, the stance of monetary policy, as captured by the federal funds rate, affects the supervisory behavior of the FED, but does not affect the behavior of the other two agencies. Since the indicator of monetary policy matters only for the FED, it is highly unlikely that it simply captures the effect of the business cycle. However, this possibility is formally tested by examining whether any of the "traditional" indicators of the business cycle affect bank supervision in the same way as the funds rate does. It turns out that indicators of the business cycle, such as the growth rate of real GDP and the change in the national unemployment rate, matter for all three supervisors and not just for the FED. Hence, the possibility that the funds rate is capturing some type of differential response of supervisors towards the business cycle is strongly rejected by the data.

The negative sign on the estimated coefficient on the federal funds rate suggests that when the FED increases the federal funds rate, it becomes less strict with respect to its bank supervisory role. One explanation is that the FED compensates banks for the extra pressure it puts on them when it increases the funds rate, either because it views them as its constituency or because it is concerned about the micro-stability of the financial sector. After all, the FED is responsible for maintaining the stability and the smooth functioning of the financial system. The negative sign on the coefficient of the federal funds rate also indicates that the FED is not using its role in bank supervision to reinforce the objectives of monetary policy (i.e., it does not try to get a "big bang for the buck")..

Although, the analysis and discussion so far focuses exclusively on whether and how monetary policy alters the FED's behavior in bank supervision, it is worth noting that this study is related to a much broader issue. In particular, over the years, major conflicts and disagreements emerged among the three agencies (e.g., Robertson, 1966; FDIC, 1997). The reason for differences might be related to distinct incentives inherent in the structure and additional responsibilities of each agency. The OCC, the FDIC,

and the FED can be thought of as three economic agents maximizing different objective functions. While they are each responsible for promoting "safe and sound" banking practices each agency has additional responsibilities that might affect its regulatory and supervisory role. This is not to say that these are necessarily "bad" objectives. In fact, a problem would arise only if their institutional priorities differ from those of the society at large. However, more research along these lines is necessary before we are in a position to know whether the current structure creates suboptimal objectives for each one of these agencies.

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Data Appendix

The sample used for estimation is drawn from the set of all insured commercial and savings banks in the U.S. whose Call Reports show that they have positive total assets. However, consistent time-series variables are obtained after a series of adjustments that involve dealing with mergers, de novos, "shell" banks, and especially changes of definitions over time and/or across supervisors.

In order to avoid discontinuities in the surviving bank's indicators of financial performance, when two or more banks merge all banks involved in a merger are eliminated for the quarter that the merger occurs.[20] Specifically, a dataset available from the Federal Reserve Bank of Chicago is used in order to identify all mergers and acquisitions that took place during the study's sample period. This dataset contains identification numbers for the surviving and nonsurviving entities, as well as the date when the merger became legally effective. However, this date may not fall within the quarter that the merging entities join their accounts (i.e., when banks start to report jointly).

The information contained in this dataset is combined with the Call Report Data to calculate the growth rate of the surviving bank's transactions deposits. Since this type of liability does not usually vary significantly from quarter to quarter, its growth rate is used to identify any unusual jump in the data. In particular, the growth rate of the transactions deposits is calculated for six quarters before and six quarters after the effective date of the merger. Moreover, the ratio of the surviving bank's transactions deposits over the nonsurviving bank's transactions deposits is calculated in order to have an indicator of the expected size of the jump. This ratio is dated at the nonsurviving bank's last reporting quarter. However, there are cases where the jump in the data is so small that it is not clear when the merger actually occurred. Since the objective of the exercise is to eliminate outliers, these cases are not really a problem.

The first two years of de novo bank observations are also omitted, since their characteristics are not typical of a fully operational bank. Like all new ventures, true de

[20] The surviving bank's balance sheet is the sum of its own balance sheet and of all the other banks involved in the merger.

novos start out with unusually high levels of capital (financed mainly through equity), low levels of core deposits, and an unseasoned ans usually rapidly growing loan portfolio. The procedure employed to identify banks that are truly de novo can be described in two steps. In the first step, a set of possible de novo banks is created. This set includes any entity which reports data at time t, but does not report at time $t-1$. However, this set includes banks which are not necessarily de novo (i.e., new entities formed from pre-existing banks). Thus, in step two, banks that do not exhibit the characteristics of de novo banks are eliminated from the set of possible de novo banks (e.g., banks with positive nonperforming loans at their first reporting quarter or banks with positive dividends at some point during their first reporting year).

"Shell" banks are also dropped. "Shell" banks are banks which exist as a legal entity (and therefore are required to file call reports) but are not operational in the usual sense. These are usually banks with zero loans or with a small amount of loans that does not change significantly from quarter to quarter. More generally, banks with total loans less than 5% of their total assets are also eliminated in order to ensure a relatively homogeneous set of banks.

However, the most challenging part of the general effort to yield sensible time-series data is dealing with changes in definitions of variables over time. To cope with this problem, "Dictionary files" available from the Federal Reserve Bank of Chicago are used. These files provide detailed definitions for all variables contained in the Call Report Data, as well as information regarding changes in these definitions.[21] Among all indicators of financial performance, the most complicated variable to construct is bank capital. However, it is also a key variable for regulatory intervention. Hence, all capital ratios used are constructed as to exactly equal the measure generated by each of the three supervisors at each point in time.[22] A more detailed appendix with precise definitions of all variables used in this study is available upon request.

[21] This document is available at http://www.chicagofed.org/economicresearchanddata/data/bhcdatabase/dictionary.cfm

[22] Due to the generous help of Peggy Gilligan at the Federal Reserve Bank of Boston.

Table 1: Formal Actions* Imposed During the Period 1990-1998

Number of Formal Actions										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
	264	352	198	58	44	14	18	30	35	1013
Formal Actions as a % of total banks under supervisor i at time t										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	
OCC	3.82	4.82	3.27	.95	.55	.32	.33	.74	.91	
FED	.85	3.02	1.84	.57	.89	.84	.31	.94	.42	
FDIC	1.51	2.17	1.10	.35	.30	.09	.10	.15	.16	

* Includes cease and desist orders and written agreements.

Table 2: Definitions and Notation.

Bank-Level Indicators of Financial Performance		
Capital Adequacy	Tier 1 Capital to Risk-Weighted Assets	Tier1/RWA
	Tier 1 Capital to Average Assets	Tier1/AvA
	Total capital to Risk-Weighted Assets	TC/RWA
Asset Quality	Real Estate Loans to Total Loans	REL/L
	Commercial & Industrial Loans to Total Loans	C&I/L
	Other Real Estate Owned to Total Loans	OREO/L
	Nonperforming Loans to Total Loans	NPL/L
	Loan Loss Reserves to Total Assets	LLR/A
	Loan Loss Reserves to Total Loans	LLR/L
Asset Liquidity	Liquid Assets to Total Assets	LA/A
	Brokered Deposits to Total Assets	BKD/A
Earnings Ratios	Return on Average Assets	R/AvA
	Return on Average Equity	R/AvE
	Loan Loss Provisions to Average Assets	LLP/AvA
	Net Loan Losses to Average Loans	NLL/AvA
Off-Balance Sheet	Non-interest income to Total Interest Income	NII/TII
Bank Size	Log of Total Assets	LogAssets
Supervisor Specific Variables		
	Dummy variable for banks supervised by the OCC	OCC
	Dummy variable for banks supervised by the FDIC	FDIC
	Federal Funds Rate	Fed. Funds
Indicators of the Economic Environment		
	Annual Growth Rate of Real GDP	G(RGDP)
	State Unempl. Rate - National Unempl. Rate	Sune-Nune
	Change of the National Rate of Unemployment	ΔNune

Table 3: Average Risk-Profile of Three Groups of Banks During 1990-98

Capital Adequacy	No FA	Start FA	End FA
Tier 1 Capital to average assets	9.65 (3.47)	6.65 (3.03)	8.77 (9.31)
Tier 1 capital to risk-weighted assets	15.83 (9.76)	10.27 (6.21)	13.86 (10.91)
Total capital to risk-weighted assets	18.47 (12.48)	12.99 (7.78)	15.57 (11.10)
Asset Quality			
Real estate loans to total loans	3.25 (5.24)	6.11 (8.06)	3.44 (4.94)
Commercial & industial loans to total loans	16.56 (11.64)	22.27 (14.97)	18.41 (12.32)
Nonperforming loans to total loans	1.41 (1.89)	4.93 (3.97)	2.66 (2.75)
Loan loss reserves to total assets	.89 (.52)	1.68 (1.05)	1.42 (.86)
Loan loss reserves to total loans	1.69 (1.08)	2.72 (1.98)	2.66 (1.57)
Liquidity			
Liquid Assets to Total Assets	.29 (.15)	.21 (.12)	.28 (.13)
Brokered deposits to total assets	.32 (2.15)	1.15 (3.80)	.30 (1.88)
Earnings Ratios			
Return on average assets	1.09 (1.34)	-2.18 (4.75)	.92 (1.85)
Return on average equity	11.72 (25.99)	-37.14 (93.87)	12.27 (26.52)
Loan loss provisions to average assets	.29 (.90)	3.00 (4.54)	.20 (1.26)
Net loan losses to average loans	.38 (1.38)	3.11 (4.82)	.40 (1.74)
Total number of observations	369855	1013	909

Notes: No FA: banks not under a FA; Start FA: banks at the time of the exam that resulted in a FA; End FA: banks at the time of the termination of the FA. Standard deviations in parenthesis.

Table 4: The Effect of Monetary Policy on the Probability of Getting a FA

	Regressors	(1)	(2)	(3)
Capital Adequacy	Tier1/AvA	$-.0851^{*}$	$-.0936^{*}$	$-.0931^{*}$
		(.0075)	(.0075)	(.0075)
	Δ(Tier1/AvA)$_{t,t-4}$	$-.0126^{*}$	$-.0125^{*}$	$-.0125^{*}$
		(.0020)	(.0021)	(.0021)
	Tier1/RWA	$-.0001$	$-.0022^{**}$	$-.0024^{**}$
		(.0012)	(.0010)	(.0010)
Asset Quality	REL/L	$.0065^{*}$	$.0097^{*}$	$.0097^{*}$
		(.0019)	(.0019)	(.0019)
	C&I/L	$.0040^{*}$	$.0048^{*}$	$.0048^{*}$
		(.0010)	(.0010)	(.0010)
	OREO/L	$.0140^{*}$	$.0152^{*}$	$.0151^{*}$
		(.0034)	(.0036)	(.0036)
	NPL/L	$.0588^{*}$	$.0572^{*}$	$.0571^{*}$
		(.0047)	(.0047)	(.0047)
	LLR/A	.0251	$.0437^{**}$	$.0433^{**}$
		(.0203)	(.0200)	(.0200)
Liquidity	LA/A	$-.0083^{*}$	$.0095^{*}$	$.0095^{*}$
		(.0012)	(.0029)	(.0029)
	BKD/A	$.0078^{*}$	$.0095^{*}$	$.0095^{*}$
		(.003)	(.0029)	(.0029)
Earning Ratios	R/AvA	$-.0246^{*}$	$-.0208^{**}$	$-.0208^{**}$
		(.0093)	(.0099)	(.0099)
	LLP/AvA	$.0585^{*}$	$.0610^{*}$	$.0611^{*}$
		(.0124)	(.0129)	(.0129)
Off-Balance Sheet	NII/TII	$.0001^{*}$	$.0001^{*}$	$.0001^{*}$
		(.00002)	(.00002)	(.00002)
Bank Size	LogAssets	$-.1068^{*}$	$-.1032^{*}$	$-.1033^{*}$
		(.0117)	(.0116)	(.1165)
Supervisor Spec. Variables	OCC	$.1762^{*}$	$.1841^{*}$	$-.1578$
		(.0494)	(.0489)	(.1560)
	FDIC	$-.2277^{*}$	$-.2132^{*}$	$-.5610^{*}$
		(.0506)	(.0500)	(.1582)
	FED$\times$(Fed. Funds)$_{t-1}$			$-.0611^{**}$
				(.0256)
	FDIC$\times$(Fed. Funds)$_{t-1}$			.0025
				(.0123)
	OCC$\times$(Fed. Funds)$_{t-1}$			.0015
				(.0114)
	(Fed. Funds)$_{t-1}$		$-.0031$	
			(.0082)	
Economic Indicators	G(RGDP)$_{t-1,t-4}$		$-.0929^{*}$	$-.0935^{*}$
			(.0073)	(.0073)
	(Sune -Nune)$_{t-1}$		$.0562^{*}$	$.0563^{*}$
			(.0117)	(.0116)
	Regional dummies	Included	Included	Included
	Quarterly dummies	Included	Not included	Not included
	Observations	357234	357234	357234
	Log likelihood	-4772.39	-4872.04	-4847.56
	Pseudo R^2	0.2871	0.2722	0.2736

* denotes significance at the 1%; ** 5%; and *** 10% level. Robust standard errors in parenthesis.

Table 5: The Effect of Monetary Policy on the Probability of Getting a FA

	Regressors	(1)	(2)	(3)
Capital Adequacy	Tier1/AvA	−.0913*	−.0908*	−.0907*
		(.0075)	(.0075)	(.0075)
	Δ(Tier1/AvA)$_{t,t-4}$	−.0125*	−.0125*	−.0125*
		(.0020)	(.0020)	(.0020)
	Tier1/RWA	−.0024**	−.0025**	−.0025**
		(.0010)	(.0010)	(.0010)
Asset Quality	REL/L	.0096*	.0096*	.0096*
		(.0019)	(.0019)	(.0019)
	C&I/L	.0047*	.0047*	.0047*
		(.0010)	(.0010)	(.0010)
	OREO/L	.0145*	.0145*	.0145*
		(.0035)	(.0035)	(.0035)
	NPL/L	.0567*	.0566*	.0565*
		(.0046)	(.0046)	(.0047)
	LLR/A	.0450**	.0446**	.0446**
		(.0200)	(.0200)	(.0200)
Liquidity	LA/A	.0450**	.0446**	.0446**
		(.0200)	(.0200)	(.0200)
	BKD/A	.0096*	.0096*	.0096*
		(.0029)	(.0029)	(.0029)
Earning Ratios	R/AvA	−.0214**	−.0215**	−.0214**
		(.0097)	(.0097)	(.0097)
	LLP/AvA	.0603*	.0603*	.0604*
		(.0127)	(.0127)	(.0128)
Off-Balance Sheet	NII/TII	.0001*	.0001*	.0001*
		(.00002)	(.00002)	(.00002)
Bank Size	LogAssets	−.1023*	−.1024*	−.1023*
		(.0117)	(.0117)	(.1168)
Supervisor Spec. Variables	OCC	.1792*	−.1730	−.1748
		(.0490)	(.1576)	(.1580)
	FDIC	−.2162*	−.5704*	−.5721*
		(.0502)	(.1600)	(.1604)
	FED×(Fed. Funds)$_{t-1}$		−.0622**	−.0635**
			(.0258)	(.0260)
	FDIC×(Fed. Funds)$_{t-1}$		.0020	.0012
			(.0113)	(.0285)
	OCC×(Fed. Funds)$_{t-1}$		.0023	.0015
			(.0122)	(.0281)
	(Fed. Funds)$_{t-1}$	−.0030		
		(.0081)		
Economic Indicators	(Nune$_{t-1}$-Nune$_{t-4}$)	.3184*	.3203*	.2929*
		(.0221)	(.0221)	(.0425)
	(Sune -Nune)$_{t-1}$	.0595*	.0595*	.0593*
		(.0117)	(.0117)	(.0117)
	G(RGDP)$_{t-1,t-4}$			.0103
				(.0141)
	Regional dummies	Included	Included	Included
	Observations	357234	357234	357234
	Log likelihood	-4850.17	-4847.56	-4847.30
	Pseudo R^2	0.2755	0.2759	0.2759

* denotes significance at the 1%; ** 5%; and *** 10% level. Robust standard errors in parenthesis.

Table 6: Differential Effect of the Business Cycle Across Supervisors

	Regressors	(1)	(2)
Capital Adequacy	Tier1/AvA	−.0936*	−.0912*
		(.0075)	(.0075)
	Δ(Tier1/AvA)$_{t,t-4}$	−.0125*	−.0125*
		(.0021)	(.0020)
	Tier1/RWA	−.0022**	−.0026**
		(.0010)	(.0010)
Asset Quality	REL/L	.0097*	.0096*
		(.0019)	(.0019)
	C&I/L	.0048*	.0047*
		(.0010)	(.0010)
	OREO/L	.0152*	.0145*
		(.0036)	(.0035)
	NPL/L	.0572*	.0567*
		(.0046)	(.0046)
	LLR/A	.0438**	.0442**
		(.0200)	(.0201)
Liquidity	LA/A	.0095*	.0096*
		(.0029)	(.0029)
	BKD/A	.0095*	.0096*
		(.0029)	(.0029)
Earning Ratios	R/AvA	−.0208**	−.0215**
		(.0099)	(.0097)
	LLP/AvA	.0611*	.0603*
		(.0129)	(.0127)
Off-Balance Sheet	NII/TII	.0001*	.0001*
		(.00002)	(.00002)
Bank Size	LogAssets	−.1033*	−.1023*
		(.0116)	(.0117)
Supervisor Spec. Variables	OCC	.1927*	.1538*
		(.0733)	(.0544)
	FDIC	−.200*	−.2307*
		(.0748)	(.0553)
	G(RGDP)$_{t-1}$	−.0875*	
		(.0263)	
	FDIC×G(RGDP)$_{t-1}$	−.0075	
		(.0283)	
	OCC×G(RGDP)$_{t-1}$	−.0046	
		(.2810)	
	(Nune$_{t-1}$-Nune$_{t-4}$)		.2544*
			(.0824)
	FDIC×(Nune$_{t-1}$-Nune$_{t-4}$)		.0539
			(.089)
	OCC×(Nune$_{t-1}$-Nune$_{t-4}$)		.0860
			(.0877)
Economic Indicators	(Fed. Funds)$_{t-1}$	−.0031	−.0029
		(.0082)	(.0081)
	(Sune -Nune)$_{t-1}$	.0561*	.0600*
		(.0117)	(.0117)
	Regional dummies	Included	Included
	Observations	357234	357234
	Pseudo R^2	0.2722	0.2756

* denotes significance at 1%; ** 5%; and *** 10%. Robust stand. errors in parenthesis