

Veuger, Stan; Wilson, Kristin

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Can Regulatory Oversight Help Firm Performance? Evidence from U.S. Commercial Banks

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Can Regulatory Oversight Help Firm Performance? Evidence from U.S. Commercial Banks

Stan Veuger
American Enterprise Institute

Kristin Wilson
University of North Carolina

Can Regulatory Oversight Help Firm Performance?

Evidence from U.S. Commercial Banks¹

KRISTIN WILSON

Kenan-Flagler Business School
University of North Carolina at Chapel Hill
McColl 4605
Chapel Hill, NC 27599
kristin_wilson@unc.edu

STAN VEUGER

American Enterprise Institute
Economic Policy Group
1150 17th Street NW
Washington, DC 20037
stan.veuger@aei.org

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Information frictions between firms and regulators are typically seen as a means by which firms evade enforcement or, alternatively, a means through which they can limit rent-seeking behavior. In contrast, we argue that information frictions between firms and regulators reduce the efficiency of firms' compliance efforts, particularly when industry rules are open-ended or qualitative. We use physical distance between firms and regulators to test these competing theories of information exchange on a panel of U.S. community banks between 2001 and 2010. We exploit overlapping regulatory jurisdictions to generate plausibly exogenous variation in distance between bank and supervisor. We find that banks located at a greater distance from regulatory field offices face significantly higher administrative costs, at an average rate of about 20% of administrative costs per hour of travel time. These cost differences are not accompanied by differences in compliance outcomes, are not driven by endogenous regulator choice, and are stable over our time period. Further, the inefficiency of distant firms is negatively related to the scale of the jurisdiction in which they operate, suggesting that information spillovers within jurisdictions limit the uncertainty about regulatory expectations in decentralized oversight regimes.

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Regulatory oversight demands ongoing information exchange between firms and regulators. The dominant paradigm emerging from economic models of regulation sees this exchange in terms of monitoring and enforcement costs. It predicts that firms use information frictions to their advantage by reducing compliance efforts (Becker 1974, Laffont and Tirole 1993). Empirical support for these models is primarily drawn from contexts where governmental resources are limited and the mandate to enforce regulation is relatively weak. Likewise, the literature on crony capitalism tends to emphasize the rent-seeking potential of relationships with government agents, particularly when rule of law is weak, access costs are low and government agents enjoy stable tenure (Stigler 1971). By and large, these theories see information exchange between firms and regulators as an adversarial process, and predict that information frictions allow firms or regulators to benefit at the expense of the public.

In contrast, we argue that information exchange between firms and regulators may also act as a channel for public-good provision. Information frictions between firms and regulators cause uncertainty for both parties that are costly to resolve. This uncertainty increases the cost of firms' compliance efforts, particularly when industry rules are open-ended or qualitative. When regulators are relatively powerful and governed by strong rule of law, firms are likely to bear the cost of regulators' uncertainty about firm behavior through demands for information. They will also bear the cost of their own uncertainty about regulatory expectations, through ineffective compliance efforts. In such environments, information exchange with regulators has the potential to be a cooperative process that benefits both firms and the public by reducing compliance costs without reducing compliance levels.

In other words, if uncertainty between firms and regulators is high, information frictions between firms and regulators should increase firms' administrative and control costs without corresponding compliance improvements. This prediction stands in contrast to the standard theories: If frictions facilitate differential enforcement, they should be associated with decreased administrative and control costs, along with deteriorating compliance outcomes. If information frictions make rent-seeking more difficult, they may (or may not) be associated with administrative inefficiencies, but would certainly be associated with improved compliance outcomes.

This paper explores these competing views of information exchange with regulators and provides estimates of the efficiency costs of information frictions in the U.S. commercial banking industry. This setting has unique benefits for our identification strategy. First, a major challenge in identifying the impact of information exchange on firm performance is that these interactions are generally endogenous. For example, a direct measure of information sharing might be the number of phone calls or visits between firms and regulators, but these are likely to be driven by a firms' economic condition. Instead, our study relies on exogenous variation in the cost of information exchange driven by geographic dispersion of firms and regulatory field offices. Multiple geographically overlapping regulatory jurisdictions operating under harmonized rules allow us to control for variation in firm performance associated with this geographic dispersion that is unrelated to regulatory enforcement. We also limit our sample to community banks, for which location decisions are driven by proximity to depositors and borrowers.

We find that physical proximity to regulatory field offices is beneficial to the firms under study: banks located at a smaller distance from field agencies face significantly lower administrative costs, at an average rate of about 20% of administrative costs per hour of travel time. This finding suggests the existence of costly uncertainty in the regulatory relationship. Further analysis reveals that these efficiency benefits are not due to differences in portfolio choices or risk-taking, are not driven by endogenous regulator choice, and are stable over our time period. The administrative inefficiency of distant firms is negatively related to the scale of the jurisdiction in which firms operate, suggesting that information spillovers within jurisdictions limit the uncertainty about regulatory expectations in decentralized oversight regimes.

Our results have implications for our understanding of the value of firms' government relationships, as well as for managers and policymakers. If regulatory monitoring results in an a higher compliance burden when information frictions are low, managers should adopt an arms-length approach to oversight relationships; if regulators provide resources, information or learning opportunities, a more

collaborative stance is in managers' interest. We provide novel evidence that a firm's positioning vis-à-vis regulatory agencies has the potential to create operational value for firms.

The implications for public policy are different from those derived from the literature that emphasizes conflict inherent in the regulatory relationship. Our results suggest that regulatory capacity creates positive spillovers that go beyond the execution of the regulatory mandate, but they also show that these interventions may create uneven access to such benefits within industry. While the value of regulatory relationships is certainly linked to the institutional context, such as the strength of regulators' enforcement mechanisms and public accountability, efforts to minimize rent-seeking behavior by firms might limit the potential for value creation through public-good provision.

Firms and regulators

Case-by-case discretion over industry rules requires significant ongoing information exchange between firms and regulators to determine where firms fall within compliance standards; firms must determine what actions are expected of them, and regulators must determine if firms follow through on these actions. Firms may prefer adaptive government to strict legalism, to avoid the imposition of inappropriate benchmarks, but this demand for ongoing information exchange creates a great deal of uncertainty on both sides of the regulatory relationship that is costly to resolve. One consequence of this uncertainty is the possibility that patterns of enforcement vary systematically with information frictions within industry.

Theory makes several predictions as to how these frictions impact compliance investments. The first is that the cost of information exchange is borne by the public, through uneven enforcement and decreased compliance efforts by firms that can escape regulatory scrutiny. Much of the research in mechanism design focuses on the role of regulatory monitoring and enforcement costs in determining firms' optimal disclosure and compliance efforts, as in (Becker 1974, Laffont and Tirole 1993). To the extent that regulatory agents cannot (or do not) observe or credibly punish firms operating outside the bounds of acceptable conduct, firms' communication choices and compliance efforts will be

opportunistic. To the extent that benefits to voluntary disclosure exist, they come in the form of a reduced threat of regulation or sanction. In such environments, as the same information frictions hinder enforcement efforts by regulators.

A second line of work suggests that agency problems dominate information exchange between firms and regulators, emphasizing both administrative agents' (Ades and Di Tella 1999, Djankov, La Porta *et al.* 2002) and firms' (Fisman 2001, Hillman 2005, Faccio 2006) incentives to engage in rent-seeking, particularly in environments with weak rule of law. This literature suggest that firms face higher costs when their regulator enjoys greater access, as increased transparency allows corrupt bureaucrats to extract resources from firms (Svensson 2003). Under this perspective information frictions deter costly rent-seeking so increased access is likely to result in higher rent-seeking costs for firms.

That said, there is also evidence that agency problems generate financial benefits to closer relationships with regulators, although these benefits come at the expense of compliance efforts. Under economic capture theory, regulators and firms with high frequencies of interaction are better able to establish reputational equilibria that facilitate the transfer of rents (Stigler 1971, Peltzman 1976, Kroszner and Stratmann 1998). These exchanges can be monetary or can involve things like future employment in exchange for less complete enforcement, although these ties can be risky without enhancing expected performance if they become dominated by personal agendas, relationships, and behavioral biases (Leuz and Oberholzer-Gee 2006). Under these views, access to regulators has the potential to enhance firms' financial performance, but only by minimizing compliance efforts.

A very different possibility is that the costs of uncertain regulatory behavior will be borne by firms through higher monitoring costs and reduced compliance efficiency. Access to regulators could improve firms' operational efficiency by reducing costs on both sides of the regulatory relationship. On the regulatory side, agencies may pass increased enforcement and monitoring costs on to firms through demands for increased documentation and formalization of control systems. Regulators may also demand more of managers' time as a substitute for information they would otherwise have acquired through more informal channels or their environment. On the firm side, a lack of legal transparency and decentralization

of authority inevitably introduces uncertainty into firms' efforts to anticipate and comply with industry rules. Increased exchange with regulators may allow managers to anticipate and pro-actively comply with regulatory mandates. Firms that anticipate regulatory behavior are also less likely to be subject to corrective action. Firms that work closely with regulators may also benefit from a free source of compliance expertise, while more distant firms would have to invest disproportionately in these capabilities to achieve the same quality of internal controls. At the extreme, information exchange with regulators may serve as free channel for industry "best practices", essentially a *substitute* for internal investments in compliance. The availability of lucrative positions in private industry for former regulatory agents is indicative of the high market value for such knowledge of regulatory behavior.

These competing theories about the value of information exchange with regulators generate very different predictions about how firms' financial performance and compliance choices will vary within industries with significant administrative discretion. If information sharing aids compliance efforts and reduces firms' exposure to regulatory monitoring costs, we would expect information sharing to be associated with both lower costs at firms and (weakly) improved compliance outcomes. We would expect the opposite if closer relationships mostly facilitated regulatory capture. If information sharing simply limits opportunistic behavior at firms, then compliance efforts and costs should vary systematically with information frictions.

Empirical approach

We test these alternative stories in the U.S. commercial banking industry. Several features of this setting aid in clean identification of the impact of the information environment on regulatory outcomes. First, an abundance of rules govern the behavior of commercial banks. These rules require a case-by-case evaluation of banks' risk management, which results in ongoing demands for information exchange between regulatory agents and bank managers. Second, bank locations and regulator field office locations are geographically dispersed, which provides us with firm-level variation in information frictions. Multiple geographically overlapping regulatory jurisdictions operating under harmonized rules allow us

to control for variation in firm performance associated with this geographic dispersion that is unrelated to firms' regulatory relationships. Below, we discuss our empirical setting and identification strategy in more detail.

Banking supervision in the US

The havoc that banking crises can wreak on the economy has led the government to introduce an abundance of regulation to ensure that managers do not take undue risks with insured depositor funding. Regulators regularly assess banks' internal control systems and the quality of banks' governance through "Safety and Soundness" examinations.² These exams, which are generally scheduled to last several weeks every year or two,³ are performed at bank headquarters by teams of travelling field agents. During visits examiners work closely with bank management to evaluate financial risk exposure as well as assess management effectiveness, internal controls and communication. Bank examiners have broad discretion in evaluating these practices, but their effectiveness depends critically on their understanding of both banks' internal operations and the environment in which banks do business. An effective exchange also depends on banks' understanding of examination processes and expectations. Much of this contextual information is exchanged in the time period between the formal examinations through ongoing communication. According to the FDIC:

"Bankers often tell us that maintaining communications with supervisory staff helps them understand the FDIC's expectations and can be a useful source of information about supervisory and regulatory matters... By establishing a working relationship with these individuals as well as state banking department personnel, bankers can use the regulators as a resource and gain insight into regulatory expectations and procedures." (FDIC, 2012)⁴

The examination process has a significant impact on bank performance, notably through administrative costs. When firms fail to meet regulatory standards, formal enforcement actions against the bank can range from confidential memoranda to public and legally enforceable penalties, which can affect

² At Safety and Soundness exams banks are assessed on Capital adequacy, Asset quality, Management, Earnings, Liquidity and Sensitivity to market risk ("CAMELS"). Banks are also subject to a number of other regulatory requirements that require on site exams.

³ The timing of the examination is determined by the regulatory agency, although maximum frequency between examinations is determined by statute (12 CFR 4.6).

⁴ See "The Risk Management Examination and Your Community Bank," *Supervisory Insights*, Summer 2012. <https://www.fdic.gov/regulations/examinations/supervisory/insights/sisum12/examinations.html>

banks' continued good standing for all bank application procedures, such as branching. Resolving regulatory concerns often requires extensive communication and internal adjustments – for example, when examiners identify issues “requiring attention,” banks are required to document the underlying causes of these concerns and propose corrective action through action plans that convincingly “demonstrate resolve.” It is worth noting that passing the administrative burden of compliance on to banks is explicit OCC policy: “[w]hen engaging in activities, examiners should not take on burdens and costs that are the bank’s responsibility. Once the OCC has identified a problem or deficiency and its potential cause, the bank should use its resources to fully determine the extent of the deficiency. The OCC will review the bank’s work and test its reliability” (OCC, 2007). The resources invested in both anticipating and satisfying compliance demands represent an enormous and ongoing administrative effort for all banks, in terms of working hours, investment in expertise, documentation, and the adaptation of management practices.

The geography of bank supervision

Physical proximity of firms and regulators provides one way to estimate the performance consequences of information frictions between firms and regulators. While active strategies to share information— through ongoing communication with regulators, network connections, or even hiring choices – is certainly relevant to managers and public policy makers, observational data on such exchanges is almost certainly endogenous to firm performance. One exogenous measure of the cost of information exchange is geographic proximity. Researchers have long recognized that geographic proximity reduces improves information exchange between parties (Marshall 1890, Feldstein and Horioka 1980). The empirical finance literature provides evidence that the cost of information varies with geographic distance (see, for example, (Coval and Moskowitz 2001, Petersen and Rajan 2002)), and the accounting literature has found evidence that these information costs can affect compliance behavior (DeFond, Francis et al. 2011, Kedia and Rajgopal 2011).

Nonetheless, direct measures supporting distance as a proxy for information frictions in our setting is hard to obtain in our setting, given the confidentiality of many aspects of the Safety and

Soundness examination process. The strongest evidence that regulators perceive physical distance to be a source of substantial information frictions is the administrative structure of oversight itself. The fact that bank regulators perform on-site exams, the fact that regulatory field offices are geographically dispersed rather than centralized, and the fact that permanent in-house examiners are assigned to large, complex institutions, despite concerns of regulatory capture, are all clear indicators that regulators see physical distance as a barrier to efficient and effective oversight. While community banks undergo periodic on-site exams once every year or so, proximate banks retain advantages in ongoing information exchange.

Informational interviews and industry publications support the idea that geographic dispersion may create information frictions between firms and regulators. For example, the Tennessee Department of Financial Institutions advertises that: “There are many benefits of becoming a Tennessee state chartered institution (...) because state banks in Tennessee have closer geographical proximity to their primary regulator, communication is more direct and more effective (...)” An FDIC publication discussing effective communication between on-site exams suggests meeting frequently on an on-demand basis with regulators before and after exams, giving the following lesson on effective communication before an exam:

“Several weeks before an examination began, bank management contacted the Examiner in Charge (EIC) to advise him of certain irregularities related to the recent resignation of a bank officer. The EIC met with bank management one week before the examination team arrived to assess the impact of these irregularities. These early discussions allowed the EIC to complete his review of the situation, resulting in a more narrowly scoped, risk-focused examination.” (FDIC, 2012).

These perspectives strongly suggest that proximate banks are likely to have access to regular, ongoing communication with regulators between official exams.

A key concern with using spatial location to test the impact of information flows on performance is that geographic dispersion may proxy for a number of constructs related to economic agglomeration – for example, the cost of accountants outside urban areas. The US commercial banking setting is unique in its multiple regulatory agencies with overlapping jurisdictions at varying distance from firms. These overlapping jurisdictions allows us to identify the average “within” effect of distance from firms’

regulators separate from the average “between” effect of regulatory regime, while controlling for confounding factors across geographies, such as economic opportunity.

Regulatory jurisdictions are described in some detail below and in Table 1, but the key distinction we will be exploiting is between state-supervised state banks (SB) and federally supervised national banks (NB) located in the same area. The Office of the Comptroller of the Currency (OCC) supervises national banks chartered under federal law, while state banks are chartered under state law and are supervised by one of fifty local State Banking Agencies (SBAs).⁵ Each agency operates a separate but geographically overlapping network of local field offices, the basis of our analysis of regulatory distance.

There is significant variation in the location patterns of these field offices – and thus in banks’ distance from potential regulators – reflecting differences in their district structuring and the geographic scope. For example, the SBAs have an extensive network of field offices and headquarters in every state, often in state capitals, with 121 offices in total. The OCC has 66 field offices nationally; however, only one in three banks is nationally chartered, implying that the OCC covers less banks total, but each office supervises a larger geographic area. While 16% of banks are co-located in the same city with either a SBA or an OCC field office, 23% are co-located with both, and 61% are not co-located with either. This variation in access to alternative regulatory regimes allows us to identify the effect of distance to each bank’s “own” supervisor, controlling for its distance to alternative supervisors.

[INSERT TABLE 1 HERE]

Of course, overlapping jurisdictions will only help us identify the effect of regulator distance if the institutions themselves are comparable. For the community banks in our sample, we expect the formal differences between state and federal regulatory regimes to be minimal. Although state and national law regulating banks differed historically, formal differences dwindled by the end of the 1990s due to

⁵ In addition, state chartered banks undergo alternate-year examinations by one of two potential federal co-supervisors, depending on their membership in the Federal Reserve System. State banks that are Federal Reserve members are co-supervised by the Federal Reserve Bank (FRB) in the district where they are chartered, and non-members of the Federal Reserve System are co-supervised by the Federal Deposit Insurance Corporation (FDIC). Note that there are four agencies and three potential regimes if the federal co-supervisors are considered. All nationally chartered banks are Federal Reserve members, so the regimes are: national-chartered member banks, state-chartered member banks, or state-chartered non-member banks. In the empirical analysis, we focus on banks’ primary supervisors but control for potential effects of federal co-supervisors.

regulatory reform, intense competition for charters, and the widespread adoption of “wild card” statutes (Johnson 1995). Banking authorities have also set joint regulatory compliance standards and examination practices. Among banks with similar business profiles, differences in supervisory authority are principally historical legacy. The strategic similarity among banks in these overlapping jurisdictions allows us to focus on differences in performance outcomes within regulatory regimes rather across regulatory regimes.

Informal enforcement practices may nonetheless vary across regulatory regimes. Recent work by Agarwal et al. using confidential exam data demonstrates variation in average exam scores between state and national banks, and argues that these differences are due to variation in enforcement priorities across agencies (Agarwal, Lucca et al. 2014). These findings are not inconsistent with our hypotheses or identification strategy. The fact that these average differences in supervision have been identified empirically, despite harmonization of regulations and examination procedures, highlight the variation in informal enforcement under which banks operate and strengthen the case that information plays an important role in compliance investments. If anything, variation in unofficial enforcement practices across regimes – particularly across the fifty SBAs – makes finding that distance matters across all of them more powerful.

We limit our study to the subset of the banking industry – community banks – for which it is reasonable to assume that joint location choices are independent of the performance consequences of the regulatory relationship. Community banks are both economically tied to their home market, much like a mining company operates close to its mines or a shipping company at a port, and are considered a homogenous strategic group by regulators (Berger and Udell 2002). On average, over 99% of the banks in our sample receive over 75% of their deposits from their local area. Over 75% of our observations have less than five branch locations, and more than 25% operate only one branch. Economic ties to their customer base make it reasonable to assume that the factors which influence banks’ original location choice is not related to their proximity to the vector of potential regulators.

Likewise, there are no changes in regulator field office locations during our sample period, so we are able to control unobserved heterogeneity in performance across field office jurisdictions with MSA

and Field Office fixed effects.⁶ It also seems reasonable to assume that regulators do not locate their field offices closer to better-performing banks under their *own* supervision within a particular jurisdictional area except for ways that are captured by their distance to *all* banks within a particular area. We discuss the potential for endogenous regulator choice conditional on joint regulator-bank location decisions below.

Sample

All commercial banks are required to file quarterly financial statements, called Call Reports. We draw our initial sample from these reports, accessed from the Federal Reserve Bank of Chicago. We limit the sample to domestic commercial banks, reporting between 2001 and 2010, with less than \$1 billion in assets, located in Metropolitan or Micropolitan Statistical Areas (we use the acronym “MSA” to refer to both of these types of areas). Banks in Alaska and Hawaii are dropped for travel comparability. This sample includes the vast majority of all commercial banking institutions by number in the country but excludes systemically important banks.

Specification

In light of the multiple overlapping jurisdictions for bank supervision, the baseline empirical test takes the form:

$$Y_{i,t} = \alpha + Regulator_{i,t}\boldsymbol{\rho}' + Distance_{i,t}\boldsymbol{\gamma}' + (Regulator_{i,t} * Distance_{i,t}')\boldsymbol{\delta}' \\ + CNTRL_{i,t}\boldsymbol{\beta}' + Field\ Office_{i,t}\boldsymbol{\theta}' + \boldsymbol{\mu}_m + \boldsymbol{\tau}_t + \epsilon_{i,t}$$

where $Y_{i,t}$ represents financial performance measures, $Regulator_{i,t}$ is an indicator for the identity of a banks’ regulatory supervisor, $Distance_{i,t}$ is a vector of banks’ travel distance from each potential regulatory field offices for their geographic area, and $Regulator_{i,t} * Distance_{i,t}'$ is an interaction term between the indicator for the identify of banks’ own regulator and the distance to that regulator. We are

⁶ To confirm field office locations, we contacted every state banking agency with a questionnaire about office locations and changes in location. There have been changes in district office organization in the past. Although older documents from the OCC indicate that several field office locations existed in the past that do not exist today, FOIA requests and conversations with the OCC librarian have not enabled us to identify their exact location. Similarly, no state banking agencies seem to have undergone significant relocations since the mid-1980s.

primarily interested in the set of *within*-regulator effects of distance (δ) on performance outcomes, and hypothesize that these effects will be positive.

We control for performance differences across supervisor type (ρ) and field office jurisdictions (θ) with indicator variables. Note that we do not test specific predictions as to how any given regime choice or field office assignment will affect performance, although these may be of some interest to public policy researchers. *Distance* is also an important control, as omitting it would cause significant bias in our estimates, but we do not make specific predictions about the value of γ . We expect that locations where regulators tend to locate are financial and government centers where distant banks face higher costs to access to human capital and professional services, so dispersion may have a negative effect on cost on average. Bank performance will also vary with the business environment, so we include time-varying bank and market characteristics ($X_{i,t}$), which we define below, fixed effects for MSAs⁷ (μ_m) and time period (τ_t). Although we observe banks in multiple years, we do not include firm-level fixed effects because identification gained off changes in regulator or location is likely to be driven by confounding explanations for performance differences (for example, mergers, moves and restructuring). Finally, while overlapping jurisdictions allow us to deal with unobserved heterogeneity associated with geographic dispersion (by separating the effect of δ from γ), a different concern is whether the relationship between the interaction terms $Regulator_{i,t} * Distance_{i,t}'$ and performance outcomes $Y_{i,t}$ can be interpreted as causal. We explore and address this issue below in more detail below using matching techniques.

Measures

Our dependent variable is a measure of banks' administrative costs. We define banks' administrative expenses using information from banks' income statements (Call Reports) as non-interest expenses net of property, marketing and salary expenditures, scaled by total assets. This measure of

⁷ In some cases, MSAs and field office locations will be collinear.

administrative costs is 0.98% of assets, or over \$1 million dollars per year, for the average bank in our sample.

We use public documents to construct our database of regulatory field office locations and confirmed each location by email or phone survey. Banks report the address of their headquarters on their call reports Call Reports. For every bank-regulator pair, we calculate the hours of driving time between every bank-regulator pair using ArcMap. We report these as: “Distance to [Agency]”. Note that ArcMap takes into account traffic patterns and average speed limits.

Our measure of interest is the interaction between banks’ supervisor and banks’ distance to that regulator. Banks’ regulators are indicated on Call Reports, as “State Bank” (SB) for state banks, and “FRS Member” (FRS), for FRS member banks (See Table 1). The interaction term between distance and regulator are reported in tables as: “Distance to SBAs x (SB=1)” for SBA-supervised state banks, and “Distance to OCC x (SB=0)” for OCC-supervised national banks.⁸ Note that although coefficients are likely to vary somewhat across the nearly 200 field offices in our analysis, we pool agency-level effect for state and national banks – a fairly demanding test of the generality of our theory because inter-agency and inter-state variation could increase the standard error of our estimates. After reporting initial results as an interaction term between distance and regulator indicator, we simplify our reporting by pooling the fifty SBAs with the OCC supervisor effects under as “Distance to own supervisor”. Note that this variable is equal to “Distance to OCC x (SB=0)” + “Distance to SBA x (SB=1)”.

To control for differences in costs arising from banks’ investment profile, we use balance sheet information on product and funding choices. Product controls include loans as a percentage of assets; and real estate, small business, consumer, commercial, and agricultural lending as a percent of total loans.⁹ Administrative costs should increase with higher risk loans, so we control for portfolio risk using the delinquency rate, or percent of loans over 90 days past due. We also include the regulatory capital ratio,

⁸ In the Appendix, we also include measures of “Distance to FRB x (SB=1 & FRS=1)” for FRB-co-supervised state member banks, and “Distance to FDIC x (SB=1 & FRS=0)” for FDIC co-supervised state non-member banks.

⁹ We initially included a full decomposition of balance sheet and loan categories as controls, but included only those with economic and statistical significance.

defined as total risk-based capital over risk-weighted assets. Because costs may vary with banks' retail orientation, we include the percent of liabilities derived from deposits. We also control for organizational changes that affect cost, including the number of institutions acquired over the previous 12 months and bank age. Data for these controls come from Call Reports.

Costs at banks with identical portfolios will vary with local economic conditions, and it is important to adequately control for aspects of banks' market environments that could vary with a banks' distance from regulatory field offices. The most important control in this respect is our full set distance indicators and MSA fixed effects. However, we also include time-varying controls for MSA-level unemployment, market concentration as measured by the Herfindahl index, the percentage of local deposit market held by institutions with more than 20 branches, and indicators designating banks' location as "micropolitan" areas (less than 50,000 in population) or "outlying" areas (counties tied to larger economic areas through commutation but lacking a center of economic activity.) These data are collected from public sources: the Bureau of Labor Statistics, FDIC, and Census Bureau. Means and standard deviations of these measures are reported in Table 2.

[INSERT TABLE 2 HERE]

One empirical concern we must address is that banks' selection of regulatory supervisor *conditional* on the joint location choices of each party. There is very little time variation in banks' location or regulator choices, or such changes would likely be subject to substantial selection bias¹⁰, so we cannot use time-variation in our panel data to rule out sources of unobserved heterogeneity. Indeed, Table 3 shows that, at a given location, banks on average select their closest regulator. Table 3 also suggests that other differences exist between state and national banks—state banks are smaller institutions operating in smaller cities with a different business mix. This makes it possible that banks' cost structure varies with their joint regulator-location choice in ways we might erroneously attribute to distance. For example, suppose that historically it was less costly for state-chartered banks to invest in real estate, so real estate

¹⁰ Incidentally, the very small numbers of banks that are approved to switch regulators are both more efficient and lower risk than the average bank.

banks were both more likely to choose the state regulator and more likely to invest in real estate. Now suppose the quality of investment opportunities in real estate varies geographically in a way that we do not account for with our set of linear distance controls. If this is the case, we might find that distance to the SBA for state banks is spuriously associated with higher costs on average simply because real estate investment opportunities vary.

[INSERT TABLE 3 HERE]

While we cannot randomize regime choice for banks in a given location, we can estimate the effect of location-conditioned regime choice with less bias if we account for underlying differences in cost structure that may be due to differences in banks' "type" based on these differences in observable characteristics. To do so, we use a Coarsened Exact Match (CEM) technique (Iacus, King et al. 2011) to create sampling weights for state and national banks. Based on the probit estimates in the fourth column of Table 3, we partition the sample by covariates which predict differences between the two regimes to match state and national banks: (asset size, deposit funding share, delinquency rates, loan share of assets, loan business mix, micropolitan area location, and distance from SBA and OCC regulators). The final column of Table 3 shows that in the matched sample, which reduces our observations by about half, banks' risk and investment profiles no longer vary significantly with regime choice.¹¹ More importantly, regulator distance is no longer a significant correlate of regime choice. We use these sample weights in the analysis below.

A final concern is that variation in banks' risk preferences might lead to a separating equilibrium regime choice, if high risk banks have incentive to choose a more distant regulator while low risk banks have incentive to choose a proximate regulator. If this is true, we may falsely attribute the lower costs associated with a low-risk investment profile to regulatory proximity. However, if it is systematically true that higher risk banks choose their most distant regulator we would also expect this pattern to emerge in the data on regulator choice. Appendix Table 1 shows that banks that have higher delinquency rates on

¹¹ Note that although our sample is reduced by about half by this process, matching thins out our data in any given jurisdiction so it is more likely that the remaining banks will be collinear with our MSA and field office fixed effects. The final regression sample after these collinear observations are removed is 9,187 (See Table 4).

average are no more likely to select the SBA as their regulator if they are close to the SBA than if they are distant from the SBA, after controlling for their lending profile. Likewise, regime selection for higher risk banks does not depend on their distance from the OCC. This holds for the matched sample as well. The results are similar if we analyze regulator choice based on banks' interest income, after controlling for their lending profile. We interpret this as evidence that we should not be concerned about strategic regulator choice as a result of bank type.

Results

Table 4 presents key empirical results – we show that administrative costs increase with banks' distance to their *own* primary regulator (a SBA or the OCC). This table includes all bank and market-level control variables. Column 1 shows that economic dispersion from places where regulators tend to locate is associated with lower costs on average, conditional on bank and market characteristics. This is consistent with our observation that regulators generally locate in larger financial and government centers. However, we find that the cost savings associated with economic dispersion are offset by the inefficiency introduced by distance from banks' own regulator (Column 2). Given the fact that both the average state-regulated and nationally-regulated effects are positive and significant in the same direction, we pool these in future estimates (Column 3). Finally, these results hold in our matched sample of banks (Column 4); even in a small subset of our data, consisting only of banks which are likely to be indifferent between regulatory regimes, proximity to regulators (rather than locations where regulators tend to locate) is associated with lower costs.

[INSERT TABLE 4 HERE]

Overall, these results confirm that easy information sharing with regulators helps banks manage their internal control function and reduces the administrative burden complying with regulation. The impact on bank expense levels is sizable in economic terms: being one standard deviation (1.4) hours farther away from the primary supervisor increases management expenses as a fraction of total assets by

nearly 0.22 percentage points, or 20% of average administrative costs – over \$200,000 for the average bank.

This result is robust to a number of changes in measures, functional form and sample restrictions. Notably, we find similar results when we include the FDIC and Federal Reserve as co-supervisors of state banks (See Appendix Table 2), so we exclude these institutions to simplify reporting. Our results are robust to scaling administrative expense by different factors including equity, regulatory capital and net operating revenue. We also explored whether salary is a channel by which differences in cost may arise; however, this measure does not vary significantly with supervisor distance in any of our specifications. Our results are robust to excluding dense northeastern states, excluding “hot” banking markets with a high number of bank failures like Florida and Nevada, limiting our sample to a balanced panel, trimming outliers in our dependent variables, or dropping the smallest banks likely to be below efficient scale (below \$100M in assets).

Linear distance traveled is just one of several valid ways of demonstrating our key effect (See Appendix Table 3). Prior literature on information diffusion and geographic networks indicates that we should not necessarily find that the benefits of close supervision are linear in distance. For example, Coval and Moskowitz (2001) studies the effect of proximity on information rents in the investment industry and report that information transfers occur when agents are located within 100km (60 miles) of each other, and beyond that there is no effect. We test three non-linear specifications: an indicator indicating if a bank is in the same MSA as its supervisor, an indicator if a bank is farther than one hour’s driving distance from the supervisors’ field office, and the natural logarithm of distance as the measure of distance. In each of these specifications, our results are similar. For example, a bank co-located in the same MSA as its supervisor reports -0.13% lower control costs as a share of assets relative to banks under same regulatory field office but in a different MSA.

Compliance efforts

Are the differences in administrative costs within regulatory jurisdictions due to inefficient compliance efforts or simply to differences in compliance *levels* at distant banks? If differences in costs

are a pure efficiency effect rather than a substitution of effort, we would not expect for more distance to be associated with higher risk portfolios. Measuring compliance outcomes at banks is not as simple as measuring costs – the key feature of this setting is that readily observable, reported metrics are not sufficient for bank examiners to determine managerial efforts. As a second-best option, we investigate three reported measures to capture differences in banks' Safety and Soundness: *ex post* asset quality, measured by banks' delinquency rates, and *ex ante* positioning to absorb future losses, measured by banks' capital ratio, and revenues, measured by interest income margins. Higher risk portfolios would be characterized by higher delinquency rates accompanied by higher revenues, and potentially lower capital levels. On the other hand, there is a chance that improved communication with regulators can both reduce compliance costs *and* improve compliance efforts.

Table 5 demonstrates that banks do not trade higher compliance costs for higher revenues through risk-taking; none of the results in Table 5 suggest differences in compliance efforts at more distant banks. While distant banks hold higher levels of capital on average, this result is driven by regulator selection rather than regulator distance. These results hold if we only include banks that are above regulatory capital thresholds (8%), so they are not driven by high-risk banks. In other words, it is reasonable to interpret the lower costs at proximate banks as an efficiency benefit rather than a substitution effect. Ultimately, it seems banks' outlay of resources toward compliance may be more closely related to their ability to anticipate and satisfy examiners' demands for information than their propensity to take financial risks.

Regulatory decentralization

There are two potential explanations for our result. The first is that regulators impose higher monitoring costs on distant firms through increased demands for formal effort and documentation. The second is that distant firms suffer from poor information about regulatory expectations and enforcement patterns and make ineffective investments in compliance. One way to explore the issue is to consider how these mechanisms might vary with the scale of assets under supervision in a given jurisdiction. Larger regulatory jurisdictions should exacerbate monitoring problems at distant banks, while it potentially

alleviates the uncertainty associated with regulatory behavior for firms, as it increases the chances that firms share information (or even employees) within other firms within a jurisdiction. If jurisdiction scale increases uncertainty about firm behavior for regulators, overall compliance costs should increase with scale, and the advantages associated with proximity will increase. If jurisdiction scale contributes to increased certainty about regulatory behavior, overall compliance costs should be lower when firms operate within a larger regulatory jurisdiction, while the advantage to any such individual firm of being located close to its regulator is not likely to be as great.

To investigate this issue, we construct a measure of jurisdiction scale within each regulator field office, as the sum of assets under each regulatory field offices' supervision, minus each firms' own assets. We include both the direct effect of this measure, "Jurisdiction scale" and the interaction term of this measure with "Distance to own supervisor" in the analysis. We report the moderating effect of jurisdiction scale in Table 6. We find that the larger the group of similarly regulated peers within a jurisdiction, the lower firms' administrative costs on average, and the less important regulatory proximity is. To add validity to this analysis, we show that the counterfactual is not true – the size of OCC-supervised firms peer networks does not moderate the effect of distance to State Bank's distance to their state regulatory agency. These results suggest that a mechanism by which firms accumulate efficiency benefits in their regulatory environment is access to information and resources through similarly regulated peers.

Extensions¹²

The financial crisis of 2008 provides an opportunity to test whether our results derive from a distinct period of environmental uncertainty or are persistent across the time period. As uncertainty about regulatory behavior increases, we would expect increased monitoring and administrative demands on managers. However, it is not clear whether increasing uncertainty in the environment would reduce or enhance the value of proximity – during an adverse event, we would expect examiners to face higher uncertainty about bank performance, but also to face higher risk in exercising discretion. Using an

¹² Results in this section reported in Appendix.

indicator for the period 2008 to 2010, we find, as we would expect, that the financial crisis increases banks' costs on average but in our sample, the uncertainty introduced by the crisis does not disproportionately impact the efficiency of distant banks. These results suggest that even during a major upheaval in the industry, decreased frictions to information exchange may provide some insulation against an uncertain regulatory response.

To investigate whether our results are a function of communication technology, we also test the stability of our estimates over time. One possibility is that the improved use of information technology in recent years may reduce the disparity in information exchange between distant banks and those closer to their regulators. On the other hand, if supervisory relationships rely on examiners' local knowledge and personal relationships, there is little reason to think the effect will decrease over time. Using a time trend variable as a moderator in our sample, which includes the pre-crisis years of 2001-2007 to avoid picking up on the effects of crisis management in 2008-2010, there is little evidence that the importance of proximity decreases over time. While it is possible that information technology has reduced the differential between close and distant banks – there have been major changes in the way that examiners manage ongoing supervision over the last few decades – but we do not find evidence of a trend during our time period.

There are conflicting predictions about how firm size should influence the relationship between regulatory proximity and firm performance. On the one hand, large firms may have more sophisticated, formal internal control systems, so regulatory proximity is less likely to reduce costs at large firms by acting as a substitute for internal investments. On the other hand, large firms are presumably more likely to “capture” their regulators (Stigler 1971, Peltzman 1976), so under rent-seeking theory regulatory proximity may be more likely to reduce costs at large firms. We do not find a significant effect on the interaction term of supervisor distance and bank size, indicating that the benefit of a close supervisory relationship (or cost of a very distant one) does not grow with size for the banks in our sample. This finding provides evidence further against the capture theory-based explanation for our central result. Another interpretation of this finding is that the small community banks in our sample have relatively

homogenous response to regulatory proximity and further investigation is needed in settings that provide more contrast.

Finally, we consider whether our findings are the result of personal relationships. The ability to access regulatory knowledge through the “revolving door” should – assuming labor market frictions across geographies – increase both overall efficiency and the differential between proximate and distant firms. To test this, we collected data on examiner turnover at the fifty SBAs, reported biennially in the Profile of State Chartered Banks by the Conference of State Bank Supervisors. We find no evidence that examiner turnover is correlated with banks’ administrative efficiency, nor evidence that it moderates the effect of regulatory distance on banks’ administrative efficiency. While these results could certainly be due to shortcomings of the data and would benefit from further study in different settings, we have little support that the benefits to regulatory proximity accrue through personal relationships. Rather, combining the evidence on peer density with anecdotal evidence from industry sources, proximity appears to facilitate informal information exchange, which helps clarify and anticipate regulatory behavior.

Discussion

This paper shows that variation in the cost of information exchange with regulators can lead to performance heterogeneity in regulated industries. We observe this through the lower administrative costs at banks near supervisors, and interpret our findings as support for the idea that proximity to regulators facilitates more frequent and informal contact which can be the basis of cost-reducing information exchange. These results lead us to believe that firms can create value, not just evade compliance and capture rents, by improving information exchange with regulators.

Our results come with several caveats. The first is that our study focuses on the marginal effects of distance within a regulatory regime, not on the total costs or benefits associated with a given level of oversight. For example, it could be that the benefit of geographic proximity is greatest when administrative rules are highly complex and costly. It could also, admittedly, be the case that in other regulatory environments the advantages of proximity to regulators do not outweigh the drawbacks. Even

if they do not, the source of the benefit may be increased rents instead of decreased costs. The finding that the financial crisis dissipates the effect of proximity but increases overall costs suggests that there are complex dynamics underlying the relationships firms' compliance environment that are worthy of study.

Future studies can extend this work through further exploration of the mechanisms and the industry-level conditions under which the results hold. In the first case, reliance on exogenous variation in the cost of information exchange rather than a direct measure of contact between the parties has both strengths and limitations. The strength of our identification strategy is that it allows us to robustly identify an intriguing and empirical result with confidence, but the limitation is that leaves open questions about the precise mechanism by which these benefits may accrue, while these mechanisms are of direct interest to managers and regulators alike. Which side of the regulatory relationship is the most subject to information frictions, and how does each side manage them? What are the dynamics of knowledge acquisition over time? What are the specific strategies by which firms can derive the most value from regulatory relationships?

There are also alternative channels by which information exchange with regulators may benefit firms that we have not emphasized here. We have discussed information-sharing benefits to firms as something managers recognize and actively pursue, but an alternative rationale for closer regulatory oversight is that it resolves internal agency problems at firms, essentially co-opting the government as a substitute, tax-subsidized monitor. This may be the case if compliance requires additional effort and yields little direct benefit to managers, which is certainly plausible. The second-order effects of such agency problems are also interesting, as they may shape owners' appetites for risk-taking, altering owners' incentives to delegate more "pre-regulation" authority to managers (Domar and Musgrave 1944). Due to the fact that most banks in our sample are small and closely held, we do not believe that internal agency problems are the primary mechanism at work in our setting. However, this complementary channel through which information sharing with regulators may be beneficial deserves further research.

A related question is what factors allow such information advantages to persist if firms recognize their value. To the extent that access to regulators is valuable, we are likely to see markets emerge to

foment exchange between firms and regulators, particularly in the labor market via the “revolving door” (Lucca, Seru et al. 2014). Regulators also derive little benefit from such performance heterogeneity within industries, so they may endeavor to promote the spread of “best practices” more evenly throughout their jurisdiction. If such actions allow firms to benefit from the market for knowledge about their regulatory environment, and firms exploit these opportunities, then one would not expect to find within-industry heterogeneity in outcomes driven by improved information exchange with regulators.

The industry-level consequences of information flows between firms and regulators also deserves further attention. While we present evidence that the size of regulators’ network under supervision may reduce the cost of information frictions through intra-industry spillovers, we leave open questions as to how these spillovers occur, and the types of information that are most beneficial to similarly regulated peers. For example, do firms communicate directly through industry associations, or does a larger and more complex “sample” of institutions contribute to regulators’ own ability to share information with firms?

The only way to assess the external validity of our findings is to study a broader range of industries. Our empirical strategy relies on overlapping jurisdictions operating under harmonized regulatory guidance and we limit our sample to an otherwise homogenous group of firms. Examiners enjoy a high degree of administrative discretion, but also have the ability to pass on monitoring costs and impose crippling sanctions on non-compliant firms. There are high costs to corruption on both sides of the regulatory relationship. The firms in question are small relative to their regulators. This does not leave us much freedom to directly test the boundaries and contingencies of our theory, particularly in light of competing theories of regulatory relationships.

However, our empirical results do suggest that there is some agency-level variation in the benefits of proximity: banks that are supervised by the OCC, which is commonly argued to be the “tougher” supervisor (Agarwal, Lucca et al. 2014) exhibit the largest financial benefit from close supervision, while the pooled effect of the relatively resource-constrained state bank supervision is less precisely estimated, suggesting that the net impact of oversight depends very much on institutional factors guiding agency

behavior. We also find that the firm-specific value of information exchange is bounded by the size of the group of firms under supervision. Thus, in any given institutional setting, firms likely face a trade-offs between competing consequences of increasing information sharing with regulators. Cross-country studies may be an interesting way to explore contingencies of enforcement relationships, such as how different institutional features moderate both the importance of knowledge acquisition and firm-specific abilities to build knowledge advantages. It would also be interesting to study whether engagement with non-governmental rule-makers such as industry association or self-regulatory bodies is subject to similar dynamics.

Our results also have interesting public policy implications that deserve further attention, as the differences that arise among firms can be a double-edged sword for industries and governments. While the strategy field tends to celebrate performance heterogeneity across firms, the perception of an “uneven” playing field due to differential access or even differential capabilities may present its own risks in the public arena.

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Tables and Figures.

Table 1. Bank Supervisory Regimes

Institution Type	Charter type	FRS Member	Primary	Federal	In-sample share (2005):	
			Supervisor	Co-Supervisor	# Institutions	Assets
National Bank	National	Yes	OCC	--	24%	28%
State Non-member Bank	State	No	SBA's	FDIC	64%	58%
State Member Bank	State	Yes	SBA's	FRB	12%	14%

Note: This table describes chartering and supervision authority over commercial banks in the United States. Banks elect to be legally chartered under either state or national law. In addition, all state-chartered banks are co-supervised by one of two federal banking agency. As a result, supervisory authority is assigned on the basis of this chartering authority ("Charter Type") and Federal Reserve System membership ("FRS Member"). Agency abbreviations are as follows: the OCC is the Office of the Comptroller of the Currency, SBA's are the fifty State Banking Agencies, FRB are the 12 Federal Reserve System Banks, and the FDIC is the Federal Deposit Insurance Corporation. Figures representing the number of banks and assets under supervision is based on our sample in 2005, which includes domestic U.S. commercial banks with less than \$1 billion in assets, excluding banks in AK, HI and rural areas. Data calculated from attributes and balance sheet information on FFIEC Call Reports accessed from the FRB Chicago website.

Table 2. Summary statistics

	Avg.	Std. Dev.	Admin exp	Dist. SBAs	Dist. OCC	Dist. FRB	Dist. FDIC	Bank Assets	Capita age	Delinq %	Depos it %	Bran- ches	Loan %	RE Ln. %	Small Ln. %	Agr. Ln. %	C&I Ln. %	Cons. Ln. %	Banks Acq. p.	Unem p.	Mkt. HHI	Large bank	Micro	
Admin expense	0.98	0.81	1																					
Distance to SBAs	1.48	1.27	-0.03	1																				
Distance to OCC	1.85	2.00	-0.02	0.38	1																			
Distance to FRB	2.66	2.38	-0.03	0.39	0.25	1																		
Distance to FDIC	1.45	1.17	-0.02	0.63	0.42	0.41	1																	
Assets (log)	11.72	0.98	-0.08	-0.09	-0.01	-0.09	-0.07	1																
Bank age (log)	3.39	1.05	-0.04	0.11	-0.03	0.13	0.06	-0.05	1															
Capital ratio	10.76	3.56	0.04	0.02	-0.04	0.00	-0.3	-0.05	1															
Nonperf Loan Ratio	1.33	2.09	0.14	-0.01	-0.01	-0.02	-0.02	0.02	0.06	-0.03	1													
Deposit funding share	22.03	10.53	0.09	0.07	0.01	0.05	0.1	-0.36	0.13	0.01	-0.1	1												
Branches (log)	1.08	0.84	-0.01	0.01	0.04	-0.02	0.03	0.74	0.12	-0.28	0.02	-0.18	1											
Loan share of assets	70.38	16.15	-0.02	-0.04	0.04	-0.08	-0.03	0.21	-0.21	-0.22	0.05	-0.25	0.18	1										
Real estate loan share	68.52	17.24	-0.07	-0.16	-0.06	-0.14	-0.15	0.33	-0.17	-0.14	0.06	-0.18	0.24	0.22	1									
Small business loan shr.	30.35	13.96	0.04	-0.04	0.01	-0.09	-0.02	-0.07	-0.32	-0.03	-0.04	0.15	-0.08	0.11	-0.05	1								
Agricultural loan share	5.35	10.06	-0.08	0.20	0.10	0.26	0.17	-0.36	0.32	0.13	-0.01	0.08	-0.23	-0.14	-0.59	-0.27	1							
C&I loan share	16.02	10.62	0.01	0.00	0.01	-0.04	-0.02	0.01	-0.20	0.01	-0.03	0.05	-0.06	0.06	-0.54	0.53	-0.05	1						
Consumer loan share	8.76	9.37	0.18	0.09	0.00	0.03	0.13	-0.25	0.17	0.08	-0.07	0.21	-0.14	-0.29	-0.52	-0.18	0.07	-0.08	1					
Banks acquired, prior yr.	0.02	0.19	-0.01	0.00	0.01	0.01	0.00	0.12	0.01	-0.03	-0.02	-0.03	0.13	0.04	0.01	-0.02	-0.01	0.01	-0.01	1				
Unemployment rate	5.51	1.87	0.08	0.06	0.04	-0.11	0.05	0.09	-0.01	-0.03	0.29	-0.04	0.08	-0.01	0.18	0.00	-0.17	-0.08	-0.06	-0.02	1			
Market HHI	0.19	0.11	0.03	0.24	0.14	0.16	0.25	-0.06	0.08	0.04	-0.01	0.07	0.03	-0.04	-0.14	-0.05	0.17	-0.04	0.13	0	-0.02	1		
Large bank presence	51.88	27.56	0.09	-0.23	-0.10	-0.27	-0.22	0.25	-0.41	-0.02	0.03	-0.08	0.16	0.15	0.31	0.23	-0.44	0.09	-0.19	0.01	0.09	-0.3	1	
Micropolitan area (0-1)	31%		-0.04	0.29	0.17	0.24	0.32	-0.12	0.23	0.01	-0.02	0.06	-0.03	-0.09	-0.19	-0.12	0.27	-0.08	0.14	0.00	0.08	0.26	-0.45	1
Outlying area (0-1)	20%		-0.02	0.02	-0.03	-0.04	0.02	-0.18	0.19	0.03	0.01	0.1	-0.09	-0.07	-0.07	-0.1	0.15	-0.12	0.11	-0.02	-0.07	0.25	-0.26	-0.19

Note: This table reports summary statistics for variables used in the empirical analysis. All balance sheet measures (assets, capital ratio, deposits, loan share measures) and firm characteristics are derived from income and balance sheet figures reported annually on the FFIEC Call Reports accessed through the Federal Reserve Bank of Chicago. The unemployment rate is measured at the MSA level and derived from BLS data. Market HHI is the MSA-level Herfindal Index for in-sample banks based on branch deposits, derived from the FDIC's SUMD database. Large bank presence is defined as the percent of MSA-level deposits owned by banks with more than \$1 billion in assets (out of sample banks). Indicators for Micropolitan area and Outlying areas are derived from the Census bureau 2009 MSA definitions. All distances are measured in hours of driving time, based on ARCMap data. Field office locations collected by authors. Sample is defined as an unbalanced panel of domestic U.S. commercial banks with less than \$1 billion in assets between years 2001 and 2010, excluding banks in AK, HI and rural areas.

Table 3. Description of matched sample

	Unmatched Sample				Matched Sample			
	Avg. SB=1	Avg. SB=0	<i>diff.</i>	Pr(SB=1) <i>df/dx</i>	Avg. SB=1	Avg. SB=0	<i>diff.</i>	Pr(SB=1) <i>df/dx</i>
Distance to SBAs	1.45	1.58	-0.13	-0.0671**	1.09	1.09	0.00	0.0513
Distance to OCC	1.90	1.71	0.19	0.0549*	1.26	1.25	0.01	-0.0834
Distance to FRB	2.67	2.64	0.03	-0.025	1.98	1.99	-0.01	-0.0228
Distance to FDIC	1.42	1.57	-0.15	-0.0289	1.16	1.11	0.05	0.0244
Assets (log)	11.67	11.90	-0.23	-0.2505**	12.03	12.03	0.00	-0.0752
Bank age (log)	3.38	3.44	-0.06	-0.0221	3.16	3.15	0.01	-0.0909*
Capital ratio	10.82	10.60	0.22	-0.0052	10.48	10.51	-0.03	-0.0032
Delinquency rate	1.34	1.29	0.05	-0.0137*	1.17	1.12	0.05	-0.0104
Deposit funding share	21.77	22.86	-1.09	-0.0060**	19.67	19.08	0.59	0.0011
Branches (log)	1.05	1.19	-0.14	0.0476	1.16	1.19	-0.03	0.1320*
Loan share of assets	71.07	68.16	2.91	0.0032*	74.29	74.33	-0.04	-0.0039
Real estate loan share	68.70	67.91	0.79	0.0129**	74.92	75.23	-0.31	0.0049
Small business loan share	30.30	30.53	-0.23	-0.0028+	32.57	31.12	1.45	-0.0004
Agricultural loan share	5.62	4.48	1.14	0.0201**	2.26	2.44	-0.18	0.0102
C&I loan share	16.00	16.10	-0.10	0.0172**	15.57	15.33	0.24	0.0042
Consumer loan share	8.46	9.75	-1.29	0.0093*	6.11	5.94	0.17	0.0073
Banks acquired, prior yr.	0.02	0.03	-0.01	0.0124	0.02	0.02	0.00	0.0226
Unemployment rate	5.52	5.50	0.02	0.0078	5.53	5.65	-0.12	0.0138
Market HHI	0.1900	0.1900	0.00	-0.018	0.18	0.17	0.01	0.2417
Large bank presence	51.7	52.5	-0.80	0.0007	60.59	59.2	1.39	0.0018
Micropolitan area (0-1)	30%	33%	-0.03	-0.1218*	0.23	0.23	0.00	-0.0104
Outlying area (0-1)	21%	17%	0.04	0.0344	0.14	0.15	-0.01	0.0204

Note: This table reports summary statistics on control variables in matched and unmatched samples for sub-samples of banks with a state charter where SB=1 (supervised by SBAs) and those with a national charter where SB=0 (supervised by the OCC). The column Pr(SB=1) reports the marginal effects from a cluster-robust probit on the probability a bank falls under a state charter (SBAs supervision), where critical values are indicated by: ** p<0.01; * p<0.05; + p<0.10. Matched estimates are derived using Coarsend Exact Match (CEM) on the following bank characteristics, based on imbalance in Column 4: log assets, delinquency rate, deposit funding share, loan share of assets, real estate loan share, consumer loan share, agricultural loan share, C&I loan share, micropolitan area indicator, distance to SBA field office, and distance to OCC field office. Matching algorithm yields 26,962 matched observations with non-zero probability weights.

Table 4. Administrative costs increase with supervisor distance

	DV: Administrative expense			
	<i>Distance only</i>	<i>Supervisor and distance</i>	<i>Pooled supervisor x distance</i>	<i>Matched sample</i>
	(1)	(2)	(3)	(4)
Distance to SBAs	-0.0402+	-0.1164**	-0.1156**	-0.1126**
	-1.71	-3.15	-3.3	-2.78
Distance to OCC	-0.0218	-0.0504**	-0.0506**	-0.0579+
	-1.46	-2.73	-2.66	-1.71
State bank (SB)		0.0212	0.0213	-0.0271
		0.4	0.4	-0.29
Distance to SBAs x (SB=1)		0.1025*		
		2.53		
Distance to OCC x (SB=0)		0.0998**		
		2.67		
Distance to own supervisor			0.1010**	0.1623**
			2.71	3.76
Bank and market controls	Yes	Yes	Yes	Yes
MSA, Year fixed effects	Yes	Yes	Yes	Yes
AdjR-sq	0.171	0.196	0.196	0.282
Observations	42650	42650	42650	9187

Note: This table reports OLS regressions of supervisor distance measures on administrative costs. In Column 2, each distance measure is included with an interaction term indicating the whether a bank-year observation is regulated by that entity (as defined in Table 1): (SB=1) for state banks supervised by the SBAs, (SB=0) for national banks supervised by the OCC. In Column 3, "Distance to supervisor" = "Distance to SBA (SB=1)" + "Distance to OCC x (SB=0)". Column 4 uses sample weights from matching between state and national banks, as discussed in text and described in Appendix Table 5. Bank controls included in regressions but not reported are assets (log), bank age (log), capital ratio, delinquency rate, deposit funding as a percent of assets, number of bank branches (log), loans as a share of total assets, the number of institutions acquired in the prior year, and each of the following business lines as a percent of total loans: real estate loans, small business lending, agricultural loans, commercial and industrial (C&I) loans, and consumer loans. Market controls included in regressions but not reported are the unemployment rate, market Herfindahl index (HHI), large bank presence, and indicators for Micropolitan areas and Outlying areas. Sample restrictions, variable definitions and sources for control variables defined in Table 1. Fixed effects for regulator field office and FRS membership included in each regression. T-statistics are reported below coefficient estimates, with robust standard errors clustered by bank identifier. Critical values are indicated by: ** p<0.01; * p<0.05; + p<0.10.

Table 5. Risk profile does not vary with supervisor distance

	DV: Interest income		DV: Delinquency rate		DV: Capital ratio	
	<i>Unmatched</i>	<i>Matched</i>	<i>Unmatched</i>	<i>Matched</i>	<i>Unmatched</i>	<i>Matched</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Distance to SBAs	-0.03	-0.1062*	-0.0238	-0.067	-0.1722	-0.1625
	-0.96	-1.99	-0.47	-0.64	-1.46	-0.66
Distance to OCC	-0.0288	-0.0148	-0.0021	0.0633	-0.0569	-0.1168
	-1.43	-0.32	-0.06	0.7	-0.66	-0.6
State bank	-0.0728	-0.1287	-0.0821	0.0394	-0.6656*	-0.2104
	-1.16	-1.39	-0.56	0.25	-2.35	-0.48
Distance to own supervisor	0.0734	0.0703	0.0273	-0.0695	0.2428*	0.1989
	1.60	1.26	0.72	-0.98	2.30	1.08
Bank and market controls	Yes	Yes	Yes	Yes	Yes	Yes
MSA, Year, FO Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
AdjR-sq	0.573	0.722	0.207	0.238	0.278	0.281
Observations	42650	9187	42650	9187	42650	9187

Note: This table reports OLS regressions of supervisor distance measures on cost and risk-management metrics at banks on a matched sample of state and national banks. Matching technique and outcomes described in more detail in Appendix Table 5. Bank controls included in regressions but not reported are assets (log), bank age (log), capital ratio, delinquency rate, deposit funding as a percent of assets, number of bank branches (log), loans as a share of total assets, the number of institutions acquired in the prior year, and each of the following business lines as a percent of total loans: real estate loans, small business lending, agricultural loans, commercial and industrial (C&I) loans, and consumer loans. Market controls included in regressions but not reported are the unemployment rate, market Herfindahl index (HHI), large bank presence, and indicators for Micropolitan areas and Outlying areas. Sample restrictions, variable definitions and sources for control variables defined in Table 1. Matching described in text and Appendix Table 5. Fixed effects for regulator field office and FRS membership included in each regression. T-statistics are reported below coefficient estimates, with robust standard errors clustered by bank identifier. Critical values are indicated by: ** p<0.01; * p<0.05; + p<0.10.

Table 6. Oversight scale reduces the cost effect of supervisor distance

	DV: Administrative expense	
	(1)	(2)
Distance to SBAs	-0.1213+	-0.1411*
	-1.74	-2.19
Distance to OCC	-0.1438+	-0.1328+
	-1.91	-1.84
State bank	0.0849	-0.0176
	0.29	-0.25
Distance to own supervisor	0.3788*	0.3921*
	2.48	2.56
SBA peers x (SB=1)	-1.8954+	
	-1.8	
OCC peers x (SB=0)	-1.9355+	
	-1.85	
Regulated peers		-1.9267+
		-1.84
SBA peers x Distance to SBAs x (SB=1)	-0.0628**	
	-2.65	
OCC peers x Distance to OCC x (SB=0)	-0.0541*	
	-2.04	
Regulated peers x Distance to own supervisor		-0.0614**
		-2.62
OCC peers x Distance to SBAs x (SB=1)	0.0194	0.017
	1.23	1.14
SBA peers x Distance to OCC x (SB=0)	0.0022	0.008
	0.11	0.48
Bank and market controls	Yes	Yes
MSA, Year, FO Fixed effects	Yes	Yes
AdjR-sq	0.191	0.191
Observations	42650	42650

Note: This table reports OLS regressions of supervisor distance measures on cost and risk-management metrics at banks, with interaction terms to determine how the effect of the volume of peer banks supervised by the same field office affects performance. "Peers" are defined as the sum of assets of all other banks supervised by the same regulatory field office. Other supervisor and distance controls include the distance of each bank to their own field office, indicators for FRS member banks, and field office fixed effects. Bank controls included in regressions but not reported are assets (log), bank age (log), capital ratio, deposit funding as a percent of assets, number of bank branches (log), loans as a share of total assets, the number of institutions acquired in the prior year, and each of the following business lines as a percent of total loans: real estate loans, small business lending, agricultural loans, commercial and industrial (C&I) loans, and consumer loans. Market controls included in regressions but not reported are the unemployment rate, market Herfindahl index (HHI), large bank presence, and indicators for Micropolitan areas and Outlying areas. Sample restrictions, variable definitions and sources for variables defined in Table 1. T-statistics are reported below coefficient estimates, with robust standard errors clustered by bank identifier. Critical values are indicated by: ** p<0.01; * p<0.05; + p<0.10.

Appendix.

Table A1. Riskier banks do not select more distant regulator

	Pr(SB=1)	
	<i>Full sample</i> (1)	<i>Matched sample</i> (2)
Distance to SBAs	-0.0739** -2.91	0.0696 1.07
Distance to OCC	0.0552* 2.39	-0.1058+ -1.88
Distance to FRB	-0.0252 -1.53	-0.0228 -0.72
Distance to FDIC	-0.0288 -1.06	0.0218 0.38
Delinquency rate	-0.0201* -2.52	-0.0178 -0.83
Distance to SBA x Delinquency rate	0.0051 1.08	-0.0151 -0.63
Distance to OCC x Delinquency rate	0.0000 -0.01	0.0227 1.16
Bank and market controls	Yes	Yes
State, year fixed effects	Yes	Yes
AdjR-sq	0.191	0.080
Observations	42650	9148

Note: This table reports probit estimates on the probability that a bank is state chartered (SB=1) over the period 2001 to 2010, based on its distance to SBA field offices and OCC field offices and measures of portfolio risk. Marginal effects (df/dx) reported. Bank controls included in regressions but not reported are assets (log), bank age (log), capital ratio, deposit funding as a percent of assets, number of bank branches (log), loans as a share of total assets, the number of institutions acquired in the prior year, and each of the following business lines as a percent of total loans: real estate loans, small business lending, agricultural loans, commercial and industrial (C&I) loans, and consumer loans. Market controls included in regressions but not reported are the unemployment rate, market Herfindahl index (HHI), large bank presence, and indicators for Micropolitan areas and Outlying areas. Sample restrictions, variable definitions and sources for variables defined in text. T-statistics are reported below coefficient estimates, with robust standard errors clustered by bank identifier. Critical values are indicated by: ** p<0.01; * p<0.05; + p<0.10.

Appendix Table 2. Administrative efficiency and supervisor distance with federal co-supervisors

	DV: Administrative expense			
	<i>Distance only</i>	<i>Supervisor and</i>	<i>Pooled supervisor</i>	<i>Matched Sample</i>
	(1)	distance	x distance	(6)
Distance to SBAs	-0.0257 -1.1	-0.1070** -2.73	-0.0954** -2.64	-0.1229** -2.79
Distance to OCC	-0.0127 -0.9	-0.0437* -2.57	-0.0472** -2.62	-0.0293 -0.87
Distance to FRB	-0.0053 -0.49	-0.0098 -0.56	-0.0127 -0.7	-0.0598+ -1.81
Distance to FDIC	-0.0397* -2.38	-0.0239 -0.92	-0.0356 -1.42	0.0483 1.4
State bank (SB)		-0.007 -0.11	-0.0084 -0.14	-0.0673 -0.92
FRS member (FRS)		-0.0011 -0.02	-0.0021 -0.04	-0.0036 -0.06
Distance to SBAs x (SB=1)		0.1419** 2.68		
Distance to OCC x (SB=0)		0.1009** 2.81		
Distance to primary supervisor			0.1185** 2.86	0.1724** 3.65
Distance to FRB x (SB=1 & FRS=1)		-0.0133 -0.64		
Distance to FDIC x (SB=1 & FRS=0)		-0.0326 -1.1		
Distance to co-supervisor			-0.0073 -0.42	-0.0575** -2.65
Bank and market controls	Yes	Yes	Yes	Yes
MSA, Year fixed effects	Yes	Yes	Yes	Yes
AdjR-sq	0.282	0.283	0.283	0.199
Observations	42650	42650	42650	9187

Note: This table reports OLS regressions of supervisor distance measures on administrative costs, as defined in Table 3. In Column 2, each distance measure is included with an interaction term indicating the whether a bank-year observation is regulated by that entity (as defined in Table 1): (SB=1) for state banks supervised by the SBAs, (SB=0) for national banks supervised by the OCC, (SB=1 & FRS=1) for banks state banks co-supervised by the FRB, and (SB=1 & FRS=0) for state banks co-supervised by the FDIC. In Column 3, "Distance to primary supervisor" = "Distance to SBA (SB=1)" + "Distance to OCC x (SB=0)"; "Distance to co-supervisor" = "Distance to FRB (SB=1 & FRS=1)" + "Distance to FDIC x (SB=1 & FRS=0)" for state-chartered banks only (SB=1). Bank controls included in regressions but not reported are assets (log), bank age (log), capital ratio, deposit funding as a percent of assets, number of bank branches (log), loans as a share of total assets, the number of institutions acquired in the prior year, and each of the following business lines as a percent of total loans: real estate loans, small business lending, agricultural loans, commercial and industrial (C&I) loans, and consumer loans. Market controls included in regressions but not reported are the unemployment rate, market Herfindahl index (HHI), large bank presence, and indicators for Metropolitan areas and Outlying areas. Sample restrictions, variable definitions and sources for control variables defined in Table 1. Fixed effects for regulator field office included in each regression. T-statistics are reported below coefficient estimates, with robust standard errors clustered by bank identifier. Critical values are indicated by: ** p<0.01; * p<0.05; + p<0.10.

Appendix Table 3. Alternative distant measures

<i>Distance measure=</i>	DV: Administrative expense			
	<i>Linear distance</i>	<i>Different</i>	<i>Distance over</i>	<i>Log Distance</i>
	<i>(hours)</i>	<i>MSA (0-1)</i>	<i>1 hour (0-1)</i>	<i>(hours)</i>
	(1)	(2)	(3)	(4)
Distance to primary supervisor	0.1185** 2.86	0.1507* 2.41	0.1089* 2.3	0.0858+ 1.95
Distance to co-supervisor	-0.0073 -0.42	-0.0102 -0.18	-0.0077 -0.19	0.0187 0.46
Supervisor & distance controls	Yes	Yes	Yes	Yes
Bank and market controls	Yes	Yes	Yes	Yes
MSA, State, Year, FO Fixed effects	Yes	Yes	Yes	Yes
AdjR-sq	0.204	0.203	0.203	0.205
Observations	42650	42650	42650	42650

Note: This table reports OLS regressions of supervisor distance measures on non-salary administrative costs under four different definitions of supervisor distance. "Distance to primary supervisor" and "Distance to co-supervisor" are defined in Appendix Table 6. In Column 1, distance is measured as driving time, as defined in Table 1. In Column 2, supervisor distance is defined as an indicator (0-1) for if supervisor field offices are located outside bank headquarters' MSA. In Column 3, supervisor distance is defined as an indicator (0-1) for supervisors more than 1 hour driving time from bank headquarters. In Column 4, supervisor distance is defined as the log of driving time. Distance controls included but not reported are the distance to each of the four potential regulators; definitions vary according to the descriptions in each column. Supervisor controls included but not reported are an indicators for state charter and FRS system membership. Bank controls included in regressions but not reported are assets (log), bank age (log), capital ratio, delinquency rate, deposit funding as a percent of assets, number of bank branches (log), loans as a share of total assets, the number of institutions acquired in the prior year, and each of the following business lines as a percent of total loans: real estate loans, small business lending, agricultural loans, commercial and industrial (C&I) loans, and consumer loans. Market controls included in regressions but not reported are the unemployment rate, market Herfindahl index (HHI), large bank presence, and indicators for Micropolitan areas and Outlying areas. Sample restrictions, variable definitions and sources for control variables defined in Table 1. T-statistics are reported below coefficient estimates, with robust standard errors clustered by bank identifier. Critical values are indicated by: ** p<0.01; * p<0.05; + p<0.10.

Appendix Table 4. Exploration of alternatives

VARIABLE=	DV: Administrative expense		
	<i>Crisis</i> (1)	<i>Size</i> (2)	<i>Time trend</i> (3)
Distance to own supervisor	0.1594**	0.3887	0.1302**
	3.57	1.59	2.68
VARIABLE	0.017	-0.2757**	0.0005
	0.32	-6.83	0.07
Distance to own supervisor x VARIABLE	0.0105	-0.019	0.0074
	0.34	-0.96	1.39
State bank	-0.0267	0.4393	-0.017
	-0.29	1.34	-0.18
State bank x VARIABLE	-0.0137	-0.0389	-0.003
	-0.5	-1.5	-0.67
Distance to SBAs x VARIABLE	0.0141	0.0159	-0.0027
	0.49	0.64	-1.06
Distance to OCC x VARIABLE	-0.0115	-0.0048	-0.0011
	-0.87	-0.77	-0.22
Distance to SBAs	-0.1178**	-0.5342+	-0.1087*
	-2.84	-1.75	-2.4
Distance to OCC	-0.0635+	0.0042	-0.054
	-1.92	0.05	-1.64
Bank and market controls	Yes	Yes	Yes
MSA, State, Year, FO Fixed effects	Yes	Yes	Yes
AdjR-sq	0.293	0.294	0.294
Observations	9187	9187	9187

Note: This table reports OLS regressions of supervisor distance measures on costs interacted with three different variables, "VARIABLE". In Column 1 this variable is a dummy that is equal to 1 in years 2008-10, inclusive. In Column 2 the variable interacted is log assets. In Column 3 the interaction term is a time trend. The sample is defined as an unbalanced panel of U.S. commercial banks with less than \$1 billion in assets between years 2001 and 2010, excluding banks in AK, HI and rural areas. All dependent variables are derived from expense items from the FFIEC Call Reports, scaled by total assets and measured in percentage points. Regressions include but do not report the following variables described in the text: Assets, leverage ratio, delinquency rate, deposit funding share, earning assets share, loan share, RE loan share, CRE loan share, Small CRE loan share, # of Small CRE loans, Agricultural loan share, C&I loan share, CC loan share, Bank age (log), Bank branches, Institutions acquired, Unemployment rate, Population density, State GDP, Deposit market share, Market HHI, Large bank presence. *** p<0.01; **p<0.05; *p<0.10. T-Statistics given below coefficients, estimated with robust standard errors clustered by MSA-year.