Did the Community Reinvestment Act (CRA) Lead to Risky Lending?

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Abstract

Yes, it did. We use exogenous variation in banks' incentives to conform to the standards of the Community Reinvestment Act (CRA) around regulatory exam dates to trace out the effect of the CRA on lending activity. Our empirical strategy compares lending behavior of banks undergoing CRA exams within a given census tract in a given month to the behavior of banks operating in the same census tract-month that do not face these exams. We find that adherence to the act led to riskier lending by banks: in the six quarters surrounding the CRA exams lending is elevated on average by about 5 percent every quarter and loans in these quarters default by about 15 percent more often. These patterns are accentuated in CRA-eligible census tracts and are concentrated among large banks. The effects are strongest during the time period when the market for private securitization was booming.

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I. Introduction

The role of financial regulation in fueling the recent financial crisis is being hotly debated by academics, politicians, and policymakers (Mayer, Morrison and Piskorski, 2009). A central piece of this heated discussion relates to the role played by the Community Reinvestment Act (CRA) in the buildup to the financial crisis and, in particular, its impact on pre-crisis mortgage lending standards. Although regulators and community groups strongly defend the act, economists remain divided in their views on the role of the CRA in lowering underwriting standards. This debate is best illustrated by the stark views taken by economists Raghuram Rajan and Paul Krugman. Rajan (2010) suggests that the CRA was the channel through which "a US Congress, worried about growing income inequality, towards expanding low income housing, joined with the flood of foreign capital inflows to remove any discipline on home loans."[1] In contrast, Krugman (2010) argues that "the Community Reinvestment Act of 1977 was irrelevant to the subprime boom."[2]

Most empirical studies find that the CRA had little or no effect when looking into a battery of dependent variables (e.g., Dahl, Evanoff, and Spivey 2000 and Kroszner 2008). This lack of results makes it hard to conclude whether the CRA truly had no impact on lending standards or, alternatively, whether the empirical approaches used employed insufficient variation to identify the causal effect of the act. In this paper we attempt to fill this gap. Using exogenous variation in banks' incentives to conform to CRA standards around regulatory exams, we study whether the CRA led to riskier lending. By tracing out banks' responses to CRA evaluations in terms of both the quality and the quantity of mortgages originated, we show clearly that the CRA did lead to riskier lending.[3]

The main econometric challenge of an evaluation of the CRA's impact is the lack of counterfactual lending behavior in the absence of the CRA. Our empirical design addresses this issue by exploiting variation in banks' incentive to conform to CRA standards around regulatory exams. The Community Reinvestment Act of 1977 instructs federal financial supervisory agencies to encourage their regulated financial institutions to help meet credit needs of the communities in which they are chartered while also conforming to "safe and sound" lending standards. To enforce the statute, federal regulatory agencies periodically examine banking

[1] "Bankers Have Been Sold Short by Market Distortions." Raghuram Rajan, *Financial Times*, June 2, 2010. See also Calomiris 2008 and Calomiris 2011 for a similar view.
[2] "Things Everyone in Chicago Knows." Paul Krugman, krugman.blogs.nytimes.com, June 3, 2010.
[3] For other studies on mortgage defaults see Mayer, Pence and Sherlund 2009 and Mayer, Morrison, Piskorski and Gupta 2011 and cites therein.

institutions for CRA compliance. Regulators use this compliance information when approving applications for new bank branches as well as for mergers and acquisitions. Banks may therefore have a strong incentive to concentrate their CRA-compliant lending before an exam date to ensure a satisfactory CRA evaluation while minimizing the likelihood that such lending would fail the "safe and sound" criteria at the time of the exam.[4] Moreover, since the exam itself is not an instantaneous event, with a significant time gap between the exam initiation and the submission of the final CRA report, banks also may choose to elevate their lending a few quarters after the CRA exam.

Our empirical design exploits this intertemporal variation in incentives to comply with CRA standards by comparing banks undergoing CRA exams (*treatment group banks*) to similar banks operating in the same vicinity but not undergoing a CRA exam (*control group banks*). The identifying assumption is that around the time of CRA exams, because of their increased incentive to comply with CRA standards, banks will shift their lending behavior toward borrowers that improve their CRA rating. By law, such borrowers include any applicant that is located in CRA-target tracts – defined as census tracts with a median income less than 80 percent of the median income at the Metropolitan Statistical Area (MSA) level – as well as low-income and minority borrowers in non-CRA-target tracts. Importantly, in comparing lending behavior of banks that underwent CRA exams to those that did not, our analysis always includes tract-by-month fixed effects. This battery of fixed effects implies that our regressions are identified through variation between treatment group and control group banks *within a given tract in a given month.* As such, the fixed effects control for potentially important demand-side variables affecting the lending behavior of all banks within a given tract-month. The empirical strategy we use in the paper is related to the literature that examines the role of nonlinear incentives in shaping economic decisions. Examples include the timing of sales (Oyer 1998), procurement spending (Liebman and Mahoney 2012), and risk-taking in mutual funds (Chevalier and Ellison 1997).

Our identification strategy hinges on the assumption that the timing and frequency of the CRA exams themselves are not driven by local credit and economic conditions affecting a given bank's lending behavior. This is a plausible assumption since in practice both the timing and the frequency of CRA evaluations are driven by a fixed policy that is unrelated to local economic conditions. In particular, the review cycle for smaller banks – those with less than $250 million in assets – is five years, whereas for larger banks the review cycle is two years.

[4] In particular, this may be the case as long as the adjustment costs to elevate lending are not too large and a loan becomes delinquent over time with some hazard rate.

We use loan-level data on mortgage originations and performance to conduct our analysis. Using exogenous variation in bank incentives to conform to CRA standards around exams, we find that the CRA did indeed induce riskier lending by banks. First, we find that in the six quarters surrounding a CRA exam, lending by treatment group banks (i.e., those undergoing the CRA exam) is elevated on average by 5 percent as compared to lending by control group banks. Second, using data that track loan performance, we show that loans originated by treatment group banks around CRA exams are 15 percent more likely to be delinquent one year after origination as compared to those originated by control group banks. The evidence therefore shows that around CRA examinations, when incentives to conform to CRA standards are particularly high, banks not only increase lending rates but appear to originate loans that are markedly riskier.

We provide several pieces of evidence that support our interpretation of these findings. First, CRA assessments place particular weight on the fraction of loans targeted to low-income areas – i.e., so-called CRA-eligible tracts. We therefore expect the differential lending behavior between treatment group and control group banks to be more pronounced in these CRA-eligible tracts. This is precisely what we find in the data. Second, we exploit the fact that all loans within a CRA-eligible tract are taken into account in a CRA assessment, regardless of borrower income. We hypothesize that in attempting to comply with the CRA, banks take advantage of this regulatory feature by concentrating lending in CRA tracts to higher-income borrowers, who presumably are less risky. Consistent with this hypothesis, our results show that the effect of a CRA exam in CRA-eligible tracts indeed rises with borrower income.

Third, we find that large lending institutions drive our main findings on the impact of CRA exams on the quantity and quality of extended loans. This is to be expected: federal regulatory agencies consider depository institutions' CRA scores when considering applications for deposit facilities, including branch openings as well as mergers and acquisitions. To the extent that larger banks are more heavily engaged in mergers and acquisitions activity and expansion through branch openings, they will have a greater incentive to maintain a high CRA score and thus to adjust their lending behavior to satisfy CRA exams.

Fourth, we find that the reduction in loan standards associated with elevated lending around CRA exams is based primarily on unobservable characteristics. In other words, there is no meaningful change in the observable characteristics of loans made by treatment group banks relative to the control group banks around the CRA exam. This, again, is to be expected under our interpretation of the results, since banks have an incentive to convince regulators that loans extended to meet CRA criteria are not overly risky. This would be consistent with the CRA

mandate of "encouraging financial institutions to help meet the credit needs of the local communities in which they are chartered, consistent with safe and sound operation" (CRA 1977, Section 802).

The final part of our analysis investigates whether banks' responses to the CRA examinations have changed over time. Our analysis here is motivated by the fact that securitization activity – originating loans and selling them to investors – changed dramatically during our sample period. We find evidence of elevated lending by treatment group banks around the CRA exam during the 2004–2006 period. Moreover, our results show that the differential performance of loans originated by treatment and control group banks around CRA exams is particularly strong during the 2004–2006 period. This coincides with the time period when private securitization boomed and might therefore reflect an unexplored channel through which the private securitization market induced risky lending in the economy.

It is important to note that our empirical strategy does not provide an assessment of the full impact of the CRA on the origination of risky loans. This is because the analysis examines the effect of CRA evaluations relative to a baseline of banks not undergoing a CRA exam. To the extent that there are adjustment costs in changing lending behavior, the baseline level of lending behavior itself may be shifted toward catering to CRA compliance. That is, banks may have responded to the CRA in periods outside of CRA exams. Because the empirical strategy nets out the baseline effect, our estimates of the effect of CRA evaluations provide a lower bound to the actual impact of the CRA. If adjustment costs in lending behavior are large and banks can't easily tilt their loan portfolio toward greater CRA compliance, the full impact of the CRA is potentially greater than that estimated by the change in lending behavior around CRA exams.

The results also help rationalize why it might be difficult to identify the impact of CRA by comparing lending in CRA-eligible tracts relative to that in comparable non-CRA-eligible regions. As we demonstrate, the CRA exam induces lending to riskier borrowers both in CRA-eligible tracts as well as to low-income borrowers in non-CRA-eligible tracts. Consequently, studies that compare lending behavior in CRA-eligible tracts with that in non-CRA-eligible tracts (e.g., Kroszner 2008) might be netting out at least some variation that is induced by the CRA itself.

Our paper is connected to several strands of literature. It is related most directly to the recent literature on the causes and consequences of the financial crisis (e.g., Agarwal et al. 2012; Barlevy and Fisher, 2010; Ben-David, 2011; Keys et al. 2010, 2012; Loutskina and Strahan, 2011; Mayer and Pence 2009; Mayer et al. 2011; Mian and Sufi 2009). It is also connected to studies that discuss the role of the CRA in fueling the crisis (see Barr 2005; Hernandez-Murillo

et al. (2012), Kroszner 2008; Calomiris 2011; Bhutta 2012 and Financial Crisis Inquiry Commission 2010). Our work is also related to an old literature that has examined the impact of the CRA on lending behavior of banks (e.g., Dahl, Evanoff, and Spivey 2000 and Bostic and Robinson 2003). As far as we know, ours is the first paper in this area to identify an economically meaningful impact of the CRA on *both* the quality and the quantity of lending.

In interpreting our results, it should be stressed that while we find that the Community Reinvestment Act led to increased origination rates of risky loans, it may still be an efficient policy due to other, desirable consequences. Perhaps most important of these is the provision of credit to potential borrowers who would otherwise have been denied access to credit markets for reasons such as redlining or pure discrimination. However, by showing the costs that are associated with the regulation, we provide evidence that can help inform the debate on the overall desirability of CRA.

The rest of the paper is organized as follows. In Section II, we discuss the historical development of the CRA and the institutional details of the CRA exam scheduling. In Section III, we discuss our data sources. Section IV highlights our empirical strategy. Section V reports our main results and auxiliary findings. Section VI concludes.

II. History of the Community Reinvestment Act and the Exam Schedule

The Community Reinvestment Act was enacted by Congress in 1977 (12 U.S.C. 2901) and implemented by Regulations 12 CFR parts 25, 228, 345, and 563e. The purpose of the CRA is to make sure that depository institutions fulfill the credit needs of the communities in which they serve and operate. In particular, the CRA is designed to encourage banks to provide loans in low- and moderate-income neighborhoods in a manner that satisfies the safety and soundness of banks. Since its inception, the CRA has focused on the geographic distribution of credit, heavily weighing lending activities in lower-income neighborhoods within a banking institution's CRA assessment area(s). Generally, CRA assessment areas are the areas in which an institution operates its branches and deposit-taking ATMs and any surrounding areas in which it originates or purchases a substantial portion of its loans.

Initially, the CRA did not specify how the objective of serving community needs was to be accomplished. Implementation was left to regulatory agencies, which established several assessment factors intended to reflect the performance of a financial institution in determining community credit needs; (i) marketing of credit; (ii) participating in community development; (iii) maintaining branch offices; and (iv) avoiding discriminatory credit policies. Supervisory

agencies were explicitly required to assess an institution's record in meeting the credit needs of low- and moderate-income neighborhoods. Supervisors assessed CRA performance in formal onsite examinations from which a composite rating was determined. The ratings from this process were confidential until 1989. However, following heightened public attention to the volume and complexity of CRA issues, Congress amended the act in 1989 to require the public release of CRA ratings.

Subsequent complaints from community groups that the CRA was ineffective led the regulatory agencies to issue new guidelines that based CRA evaluation scores primarily on how well an institution was helping to meet the credit needs of local communities. Specifically, in 1995, the regulators introduced three specific performance tests: (i) a lending test; (ii) an investment test; and (iii) a service test.[5] The institution's compliance with the CRA is evaluated by examiners according to the three performance tests.

The lending test assesses the number, amount, and distribution across income groups and geographic areas of a financial institution's mortgage loans, small business loans, small farm loans, and consumer loans. Among the factors considered are the geographic distribution of lending, the distribution of lending across different borrower income groups, the extent of community development lending, and the use of innovative or flexible lending practices to address the credit needs of lower-income geographies (census tracts) or individuals.[6]

The investment test considers a banking institution's qualified investments that benefit the institution's assessment area or a broader statewide or regional area that includes its assessment area. The service test considers the scope of an institution's system for delivering retail-banking services and judges the extent of its community development services and their degree of innovativeness and responsiveness.

In order to enforce compliance with the CRA, institutions are evaluated periodically through an onsite exam. The exam is conducted by the federal agencies responsible for supervising depository institutions: the Board of Governors of the Federal Reserve System (FRB), the Federal Deposit Insurance Corporation (FDIC), the Office of the Comptroller of the Currency (OCC), and the Office of Thrift Supervision (OTS). After the onsite exam is completed – a process that takes several months – the federal agencies issue a written score on a five-point

[5] The new guidelines were put into place in July 1997 for small banks (less than $250 million) and in July 1998 for larger banks.

[6] In general, CRA compliance examinations focus on the number and dollar amount of lending in a banking institution's CRA assessment area(s). More specifically, examiners determine the geographic distribution of lending measured by the proportion of total activity in the assessment area(s), the dispersion of that lending, and the number and amount of such lending in lower, middle and upper income geographies.

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scale (O = Outstanding, H = High Satisfactory, L = Low Satisfactory, N = Need to Improve, and S = Substantial Noncompliance). Banks generally care a great deal about CRA compliance since federal regulators consider CRA ratings when approving applications for new bank branches or for mergers and acquisitions (Section 804).

There are three issues worth noting in the context of CRA evaluation scores. First, under the current rules, the lending test is more heavily weighed than the investments or services tests, so that an institution may not receive a "Satisfactory" or "Outstanding" rating unless it obtains a "Satisfactory" score in its lending test. Second, although CRA performance evaluations have always considered the activities of banking institutions across a broad spectrum of lending products, public attention has focused primarily on residential mortgage lending. This is largely due to the fact that information on mortgage lending became public pursuant to the Home Mortgage Disclosure Act (HMDA). That lending, and in particular mortgage loans, play a crucial role in CRA evaluation scores is confirmed in Dahl, Evanoff, and Spivey (1999), who document that the lending test is by far the most important element of the evaluation and that mortgages are the most important type of loans for CRA assessments. Our focus on mortgage lending around CRA exams is hence justified. Finally, in conducting the lending test, CRA evaluations place particular attention on lending in CRA target tracts, which – as mentioned earlier – are census tracts with a median income that is less than 80 percent of median income at the MSA level.

The CRA exam schedule is typically announced several quarters before the actual exam. The onsite exam and report preparation are not instantaneous and may proceed for a quarter or more after the exam date. The timing of CRA examinations and the information about the schedule of the examinations are publicly available to the bank as well as to other parties in advance. For example, each quarter the Office of the Comptroller of the Currency releases a list of national banks to be examined for compliance with the CRA in the next calendar quarter.[7] The frequency of CRA evaluations is also not likely to be driven by local economic conditions affecting the bank since it is driven by a fixed policy of cyclical examination. In particular, when CRA was enacted in 1977, federal regulators had to evaluate most of the banks under their oversight every two years. In 1999, as part of the Gramm-Leach-Billey Act, the review cycle for smaller banks – those with less than $250 million in assets – was extended from two to five years. This rigid cycle makes the exact timing of the exam unlikely to be driven by local economic conditions affecting the bank being examined. We discuss the plausibility of this assertion in Section IV.

[7] Note, though, that banks can anticipate the general timing of an exam as these occur once every two or five years, depending on bank size (see below).

III. Data

Our primary source of loan-level data for the period spanning the years 1999 to 2009 is the Home Mortgage Disclosure Act data collected by the Federal Financial Institutions Examination Council (FFIEC). HMDA data represent the universe of mortgage applications, with some exceptions for small lenders and lenders located outside an MSA. The data provide borrower demographic characteristics, a lender identifier, tract-level geographic information, and limited information on loan characteristics.

Next, we assemble a novel dataset at the Federal Reserve Bank of Chicago that contains information on CRA exams, including exam date, bank RSSD ID, and the ratings given by the regulators. The data on CRA exam schedules, as well as many of the evaluation reports, are publically available at websites of regulators that conduct these exams (i.e., OCC[8], FRB, FDIC, and OTS). [9]

To identify banks in the HMDA data that participate in CRA examinations, we match HMDA bank identifiers to RSSD ID with the identifiers cleaned to account for mergers and acquisitions since 2007. Our identification strategy exploits variation across CRA target tracts and non-CRA target tracts around CRA examination dates. We identify CRA target tracts by matching tract-level economic data to HMDA loan applications. We use the matched HMDA-CRA data to identify loan applications that were accepted or rejected by a lender in the quarters immediately before and after a CRA examination.

We also collect data on performance of loans in our analysis. This information is not available in the HMDA data. Instead, we use loan-level data from a major mortgage-processing server that collects data on loan characteristics as well as monthly loan-level performance for approved loans. Since no lender identifier is available, we match HMDA loans to this dataset based on origination date, loan characteristics, and geographic information (see Agarwal et al. 2012 for details on a similar matching algorithm). The HMDA data matched with loan-level data allows us to assess the subsequent performance of loans that were approved in the quarters immediate before and after a CRA exam.

Our main analysis restricts the sample period to the years 1999–2009. Although the CRA ratings data are available beginning in 1990, we can obtain HMDA data that can be reliably

[8] For instance, the data for OCC is available at: http://www.occ.gov/topics/compliance-bsa/cra/community-reinvestment-evaluations-coming-due.html.

[9] Since the exam start date is often missing, we use the exam end date in defining the CRA exam period. Importantly, because the start and end dates of CRA exams are usually no more than two weeks apart, this does not pose an issue for our identification strategy which examines the data at a quarterly frequency. Note that we do not use here the exam report date – i.e. the date at which the report is filed with the relevant regulator – as this often occurs several months after the end of the actual exam. We return to this point in the robustness section below.

merged with loan performance data only from 1999 onward. We end our sample in 2009 because it allows us to track performance of loans in our sample two years after the loans were originated.

For robustness we employ performance data that is available from a second data vendor specializing in private-label securities (see Keys et al. 2010 for similar use of these data). This dataset provides lender names that we then match directly to the CRA exam data. However, because the lender names are not standardized (e.g., there are differences spelling), we must standardize them manually. We then match these lender names to RSSD IDs based on bank names provided in the call reports. Although this dataset has better coverage of subprime and Alt-A loans than the first dataset we use, it also suffers from two disadvantages for the purpose of our analysis. First, the number of lenders that can be reliably matched to the CRA examination data is significantly smaller than in the previously used matched sample (74 versus 4,434). Second, and more important, this dataset does not report the loan's census tract. As a result, we cannot analyze the data at the tract level and instead must rely on coarser resolution at the zip code level.[10]

IV. Empirical Strategy

The main econometric challenge in evaluating the CRA's impact on lending is obtaining the counterfactual lending behavior in the absence of the CRA. Our empirical design addresses this issue by exploiting variation in banks' incentive to conform to CRA standards around scheduled regulatory examinations. The CRA instructs federal financial supervisory agencies to encourage their regulated financial institutions to help meet the credit needs of the communities in which they are chartered while also conforming to "safe and sound" lending standards. To enforce the statute, federal regulatory agencies periodically examine banking institutions for CRA compliance. Regulators use this compliance information when approving applications for new bank branches as well as for mergers and acquisitions. Banks therefore have a strong incentive to concentrate their CRA-compliant lending before an exam date to ensure a satisfactory CRA evaluation while minimizing the likelihood that such lending would fail the "safe and sound" criteria at the time of the exam. Moreover, since the exam itself is not an instantaneous event – there is a time gap between the exam initiation and the submission of the final CRA report – banks may also choose to elevate their lending a few quarters after the CRA exam.

[10] Agarwal et al. (2012) discuss the strengths and weaknesses of the two datasets.

Our empirical design exploits this idea and relies on comparing banks undergoing CRA exams (*treatment group banks*) to similar banks operating in the same area but not undergoing a CRA exam (*control group banks*). The identifying assumption is that around CRA exams, banks have a strong incentive to conform to CRA standards by shifting their lending behavior toward borrowers and census tracts that could improve their CRA rating. Such borrowers include any applicant located in a CRA-target tract and low-income and minority borrowers in non-CRA-target tracts.

More formally, our identification strategy compares, within a given time period and region, the lending behavior of banks facing a CRA exam to that of other banks not facing such an exam. Our baseline specification is as follows:

$$Y_{ibct} = \alpha + \sum_{q=1}^{3} \beta_q * (PreExam\ q)_{bt} + \sum_{q=1}^{3} \tilde{\beta}_q * (PostExam\ q)_{bt} + \gamma \mathbf{X}_{it} + \mathbf{f}_{ct} + \varepsilon_{ibct},$$

in which Y_{ibct} is a borrower-level outcome variable pertaining to borrower *i* made by bank *b* in census tract *c* in month *t*. For example, *Y* in certain specifications measures whether a loan application was accepted by a bank or, alternatively, whether a loan originated by a bank eventually becomes delinquent or defaults. The variables *PreExam q* in the first summation are event-time indicator variables measuring the timing of the bank's CRA evaluation. Specifically, $(PreExam\ q)_{bt}$ takes on the value of one if a CRA exam is initiated on bank *b, q* quarters prior to month *t*. For example, $(PreExam\ 1)_{bt}$ takes on the value of one if a CRA exam is initiated on bank *b* in the quarter prior to month *t*. Similarly, $(PostExam\ q)_{bt}$ is an event-time indicator variable that equals one if a CRA exam is initiated on bank *b, q* quarters after month *t.*[11] $\mathbf{X}_{it}$ is a vector of borrower-level covariates. Finally, $\boldsymbol{f}$ is a vector of tract-by-month fixed effects. This battery of fixed effects implies that the regressions are identified through variation between treatment group and control group banks within a given tract in a given month. As such, the fixed effects control for potentially important demand-side effects affecting the lending behavior of all banks within a given tract-month. The coefficients of interest in these baseline regressions are the β_q and $\tilde{\beta}_q$ coefficients. For example, in the case where *Y* measures loan acceptance, positive beta coefficients indicate that banks increase origination rates around CRA exams.

As a corollary to our baseline specification, we hypothesize that the effect of CRA exams will be particularly strong on lending in CRA-target tracts. These are tracts with median income less than 80 percent of median income at the MSA level. Because lending to CRA-target tracts is

[11] For ease of notation and presentation, we include the month of the exam itself in the *PreExam 1* indicator variable.

particularly important in determining the ultimate CRA evaluation, we predict that in response to a CRA exam, banks will shift lending toward these tracts. We therefore add to our baseline specification interaction terms between the CRA exam event-time indicator variables, *PreExam* and *PostExam*, and an indicator variable measuring whether a loan is made within a CRA-target tract.[12] As before, the identification assumption behind this strategy is that in a given tract and month, differences in lending behavior between banks facing a CRA exam and those that do not are driven by the CRA exam itself rather than other effects such as borrower demand.

We note that, throughout the paper, we estimate our specifications using OLS despite the binary nature of several of the dependent variables. The reason is that we have a large number of fixed effects along several dimensions and using logit or probit results in an incidental parameters problem. Our OLS specification with flexible controls to capture nonlinearity allows us to estimate our coefficients consistently even with multiple fixed effects (Dinardo and Johnston 1996).

We now discuss the important ingredients of our empirical strategy. As we described earlier, different regulatory bodies conduct evaluations of banks under their supervision to ensure that their lending meets the criteria laid out in the CRA. Our identification strategy hinges on the notion that the timing and frequency of these evaluations are not driven by local credit and economic conditions affecting a given bank's lending behavior. This is a plausible assumption since CRA examinations are scheduled well in advance and the information about the schedule of the examinations is publicly available to the bank as well as to other parties. For example, the Office of the Comptroller of the Currency each quarter releases a list of national banks to be examined for compliance with the CRA in the next calendar quarter. As of early January 2012, the OCC announced the examination of 105 national banks in the first quarter of 2012. According to the OCC, the purpose of releasing the information to the public is to allow: "interested parties to file public comments about the banks' performance under the CRA. All public comments received before the close of the CRA examination will be considered by the OCC in its evaluation."[13]

The frequency of CRA evaluations is also not likely to be driven by local economic conditions affecting the bank. When the CRA was enacted in 1977, federal regulators evaluated most of the banks under their oversight every two years. In 1999, as part of the Gramm-Leach-Billey Act, the review cycle for smaller banks – those with less than $250 million in assets – was

[12] As is standard, all interaction regressions include direct effects as well.

[13] See the OCC website's at: http://www.occ.gov/topics/compliance-bsa/cra/community-reinvestment-evaluations-coming-due.html.

extended from two years to five years. The effect of Gramm-Leach-Billey is well reflected in figure 1, which shows the bi-module distribution of the number of quarters that elapse between CRA examinations. Furthermore, the Office of Thrift Supervision later increased the size threshold for an extension from two to five years to $1 billion; as a result, 87 percent of banks supervised by the OTS now qualifying for a five-year evaluation cycle.[14] As figure 1 demonstrates, the vast majority of the banks are evaluated on a two-year or five-year cycle, suggesting that evaluations are predetermined by the regulatory cycle rather than by the conditions affecting the bank under supervision. Finally, we control for tract*month fixed effects whenever the data enable us to identify the census tract in which the property is located. The inclusion of these fixed-effects is designed to absorb any local time-varying effects that are likely correlated with local demand for credit that affect all banks regardless of the timing of their CRA examination.

V. Empirical Findings

A. Descriptive Statistics

We start by providing information on CRA exams for the banks in our sample. Panel A of table 1 provides summary statistics for CRA exams occurring during the sample period, 1999–2009. Over the 11 years covered by the data, 5,651 banks underwent a CRA exam, with the average number of exams per bank being 2.28. The average duration between CRA exams was 15.3 quarters with a standard deviation of 5.56 quarters. Figure 2 provides the distribution of the number of examinations per bank, showing that a sizable number of banks (35 percent) were examined three or more times during the sample period.

Coding the five-level ratings of the CRA examination on a scale of one through five, with a grade of one associated with an "Outstanding" rating and a grade of five associated with a "Substantial Noncompliance" rating, the sample average rating is 2.78 (table 1A). Figure 3 displays the distribution of CRA exam ratings: while 84 percent of the sample obtain a "Low Satisfactory" rating, 14 percent obtain "Outstanding" rating, and about 2 percent obtain a "Substantial Non-compliance" rating. Figure 4 provides the evolution of the number of CRA bank examinations over time. The figure shows that examination intensity varied over time, with more than 600 banks examined in the second quarter of 1999 and almost 150 examined in the fourth quarter of 2001. Since 2004, examination intensity stabilized with approximately 250 examinations per quarter on average. This is a result of two factors – a trend in mergers and

[14] The OTS extension became effective on October 1, 2004, and is reflected in the decline in CRA evaluations per quarter from 2004 onward, as we show in the next section.

acquisitions activity that reduced the number of banks to be evaluated as well as a change in regulation by the OTS that allowed for less frequent evaluations of banks with assets worth less than $1 billion.

We now discuss descriptive statistics of main variables used in our analysis, focusing on the two datasets covered in Section III. Panel B of table 1 reports summary statistics of loan applications in the HMDA–CRA exam matched dataset. These data comprise the 94,499,633 applications submitted to banks that underwent at least one CRA exam during the sample period. As can be seen, the average approval rate across all sample loan applications is 72 percent. CRA-eligible tracts constitute 17 percent of the census tracts in our sample. Furthermore, about 5 percent of loan applications are submitted to banks that are in the first month of a CRA exam or are about to undergo such an exam within three months.

We also find that 93 percent of the applications are for conventional mortgages, 62 percent are for loan refinancing, and 91 percent are for properties that are owner occupied. Average annual applicant income in this sample is $89,030. Finally, minority applications account for 17 percent of the HMDA-based sample, 29 percent of applicants are female, and the average loan amount requested is $141,360. In general, the nature of loan application characteristics in our HMDA-based dataset is comparable to that found in other related studies (Dahl et al. 1999).

Panel C of table 1 reports summary statistics of the loans originated by banks that underwent at least one CRA exam over the sample period. The data are obtained by matching HMDA loans to data on loan performance. As can be seen, average income of borrowers is $100,340, which is about $11,000 greater than the average income of loan applicants shown in panel B of table 1. The average approved loan amount is $184,110. The fraction of approved loans held by minorities is 15 percent, while the female share of approved loans is 28 percent. These are comparable to the application shares of minorities and females described in panel B. The fraction of high-risk and alternative loans originated by CRA banks is comparable to other studies that have used this data (Agarwal et al. 2012).The average loan-to-value ratio is 82 percent, the average FICO score is 713, and the 30-, 60-, and 90-day delinquency rates within one year of origination are 7 percent, 2 percent, and 1 percent, respectively.

Finally, panel D of table 1 presents summary statistics of loans originated by banks that underwent at least one CRA exam over the sample period. The data are obtained by matching the bank names provided in the call reports with the private-label ABS/MBS mortgage data. The characteristics of loans originated by CRA banks is comparable to other studies that have employed these data (Keys et al. 2010). The average loan-to-value ratio is 82 percent, the

average FICO score is 654, and the 30-, 60-, and 90-day delinquency rates within one year of origination are 23 percent, 10 percent, and 6 percent, respectively.

B. Main Results

1. Elevated Lending Due to CRA

We turn now to our main results. Table 2 presents the baseline regressions in which we use the HMDA–CRA exam matched dataset to investigate the effect of the CRA on mortgage origination levels. The regressions analyze origination rates of loan applications around CRA examination dates by comparing treatment group to control group banks. All regressions in this table employ as dependent variable an indicator variable that takes on the value of one if a loan application was accepted and zero otherwise.

In column 1 of the table, the loan acceptance indicator variable is regressed on a dummy variable, *Pre-exam 1*, which equals one if the loan application is submitted to a bank that will undergo a CRA exam in one quarter. The regression also includes analogous indicator variables, *Pre-exam 2* and *Pre-exam 3*, measuring whether a bank will undergo a CRA exam in two and three quarters, respectively. As discussed in Section IV, the regression employs a full set of census-tract-by-month fixed effects that absorb location-specific time-varying effects that are likely to drive loan demand. The regressions are therefore identified off of the differential lending behavior of treatment group and control group banks within a given month and census tract. The standard errors reported are clustered at the state*year level.[15]

The results in the first column of the table suggest that banks increase their origination rates before undergoing a CRA exam. We find that treatment group banks increase their origination rate three quarters before the exam. This effect is economically significant. As the coefficient on *Pre-exam 3* demonstrates, treatment group banks increase originations by about four percentage points as compared to control group banks. This corresponds to a sizable 5.5 percent increase in the likelihood of loan origination relative to mean sample origination rate of 72 percent, three quarters before the CRA exam. Two quarters before the exam, treatment banks maintain a four percentage point elevated origination rate (5.5 percent relative to mean sample origination rate), whereas one quarter before the exam the effect intensifies to 5.1 percentage points (7.1 percent relative to mean sample origination rate).

At this point it is useful to discuss why we see elevated lending in the quarters preceding the CRA exam. As we explain in section II, regulatory considerations induce banks to meet the

[15] Our results are robust to clustering only at state and year levels.

CRA lending goals. Banks have a strong incentive to concentrate CRA-compliant lending before the exam date to ensure a satisfactory CRA evaluation, since doing so minimizes the likelihood that such lending would fail the "safe and sound" criteria at the time of the exam.

In column 2, we add indicator variables (*Post-exam 1, Post-exam 2,* and *Post-exam 3*) to capture the effect of CRA examinations one, two, and three quarters after the onset of the exam. The results show that the differential effect between CRA-examined banks and their peers persists following the onset of the exam. In the first quarter after the initiation of a CRA exam, treatment group banks exhibit an origination rate that is elevated by 6.3 percentage points as compared to control group banks, or 8.75 percent of the average origination rate. Two quarters after exam initiation, treatment group bank lending is elevated by 5.8 percentage points, while three quarters after the exam this effect decays to 3.3 percentage points.

The lending is likely to remain elevated in the quarters after the exam for two main reasons. First, the exam itself is not an instantaneous event. Figure 5 illustrates the distribution of the time elapsed between exam initiation and the submission of the final CRA report. As can be seen, CRA examiners interact with a bank over a period of time – often submitting their report more than two quarters after the exam is conducted. Second, there may be inertia in banks' lending behavior after a policy of CRA examination targeting has been initiated. Organizational adjustment costs may cause banks to keep elevated lending rates even after the CRA exam is formally completed. For example, after management issues an informal companywide directive to increase lending, it may take time to reverse direction, with the result that lending may remain elevated for few more months.

In the last column of table 2, we interact the CRA exam variables with an indicator variable, *CRA-eligible tract*, measuring whether the loan application is associated with a tract that is CRA eligible. As explained above, CRA-eligible tracts are those with a high proportion of low-income households. CRA assessments are also based on the geographic distribution of mortgages and, in particular, on the fraction of loans originated in low-income areas. As a result, we expect the differential behavior between treatment group and control group banks to be more pronounced in CRA-eligible tracts.

Consistent with this hypothesis, we find that the interaction terms between the CRA examination dates and CRA-eligible tracts are statistically and economically significant. Similar to the trends of the CRA exam indicator variables, the effect of the CRA target-tract interaction variable peaks around the initiation of the exam. For example, in the quarter following the onset of the exam, summing the coefficients on the direct effect of the CRA exam and the interaction term shows that treatment group banks increase origination rates in CRA-eligible tracts by 8.2

percentage points. This is an economically meaningful effect, representing 11.4 percent of the mean sample wide origination rate.[16]

Figure 6 plots the dynamics of elevated lending in CRA-eligible tracts as well as non-CRA-eligible tracts using the coefficients on the level and interaction terms from table 2. The figure shows the increase in origination rates among treatment group banks around the CRA exam in both CRA-eligible tracts as well as non-CRA-eligible tracts. Increased origination in non-CRA-eligible tracts could be explained by the fact that CRA assessments take into account lending done by a bank more broadly in its "servicing area" – to the extent that it is provided to underserved populations such as low-income or minority borrowers (see Dahl et al. 1999). We explore this issue further in the next sections.[17]

2. Heterogeneity in Elevated Lending

We next assess the heterogeneity of the CRA examination effect across varying borrower income levels as well as across different bank size groups. We first segment the sample of loans into three groups based on borrower income terciles. The income terciles are formed within each tract over the sample period. For each subgroup we rerun the baseline regressions that include the pre- and post-CRA exam indicator variables as well as the interaction terms with the CRA-eligible tract indicator variable. As discussed above, we expect that in non-CRA-eligible tracts, elevated lending associated with a CRA exam should be more pronounced among low-income borrowers. The reason is that loans to this subgroup are counted in CRA assessments even if they are provided in non-CRA-eligible tracts. Results, shown in the three columns of table 3, are consistent with this hypothesis. Comparing the coefficients on the examination indicator variables – i.e., the level effects – across the three income tercile subsamples reveals that elevated lending in non-CRA target tracts is monotonically decreasing in borrower income. For example, the coefficients on *Pre-exam 1*, the indicator variable capturing the first quarter after the onset of a CRA exam, are 0.059, 0.054, and 0.035 for the low-, medium-, and high-income borrower subsamples, respectively. This is equivalent to about 9.5 percent, 7.4 percent, and 4.9

[16] Since the average loan origination rate in CRA tracts is only 61 percent – i.e., lower than the sample wide average, as would be expected – the economic significance of this effect is particularly large: in CRA-eligible tracts a CRA exam is associated with a 13.4 percent increase in the loan origination rate.

[17] We do not have a prior on how many quarters before and after the lending stays elevated. We experiment with more than three quarters on either side of the CRA exam and find that the elevated lending occurs only from three quarters before the CRA exam until three quarters after the exam. For instance, figure 7 plots coefficients of a specification analogous to Figure 6 and shows that the pattern of elevated lending is not visible for the fourth quarter before and fourth quarter after the CRA exam.

percent elevated lending relative to the mean lending in low-, medium-, and high-income borrower terciles, respectively.

In addition, the interaction-terms coefficients in columns 1–3 of table 3 reveal an interesting pattern. During periods of CRA examinations, lending in CRA-eligible tracts is monotonically increasing in borrower income levels. That is, banks lend more to higher-income borrowers in CRA-eligible tracts during CRA examinations. This result is consistent with banks' taking advantage of the fact that all loans within a CRA-eligible tract carry the same weight in a CRA assessment, including loans to higher-income borrowers, which presumably are less risky.

We next segment the sample of loans into three subsamples based on bank asset size using two threshold asset levels: $1 billion and $50 billion. As can be seen from the first three columns of table 4, the effect of CRA examinations, in both CRA-eligible tracts and non-CRA eligible tracts, is concentrated among the largest banks with assets above $50 billion.[18] The coefficients of both the level and interaction-terms of CRA examination variables are smaller in magnitude and, in the case of banks with assets between $1 billion and $50 billion, often not statistically significant. The results in column 3 show that among the largest set of banks, one quarter after the initiation of a CRA exam, treatment banks increase origination rates by 7.8 percentage points in CRA-target tracts as compared to peer banks not undergoing such an exam (around 11.3 percent relative to mean rate of 69 percent). In contrast, the same effect in banks with assets smaller than $1 billion in loans is 2.5 percentage points (around 2.9 percent relative to mean rate of 84.9 percent). Our leading explanation for this finding is that federal regulatory agencies are instructed to consider depository institutions' CRA score when considering applications for deposit facilities, including branch openings and mergers and acquisitions (CRA 1977, Section 804). Since larger banks are the ones more heavily engaged in mergers and acquisitions and are more likely to expand through branch openings, maintaining a high CRA score will be more important to them.

In final column, we re-estimate the regressions for the largest banks with bank fixed effects. As is evident, the results for these banks remain. In unreported tests, we also conduct the tests for medium- and small-size banks and find inferences similar to those reported in the first two columns.

3. Riskier Lending Due to CRA

[18] The distribution of bank asset size in the U.S. economy is skewed (see Agarwal et al. 2012). In our sample there are 49 banks with assets above $50 billion, but these account for around 52 percent of the loan applications in the sample.

Our results so far suggest that treatment banks undergoing a CRA exam exhibit higher origination rates relative to a control set of banks lending in the same regions, with the effect being especially strong in CRA-eligible tracts. We now examine the riskiness of these loans. To this end, we run the baseline specification described in Section IV using loan delinquency as the dependent variable. As discussed in Section III, since HMDA data do not provide loan performance information, we match the HMDA dataset to loan-level data and track the performance of loans in this dataset.

Table 5 presents the results of running the baseline regression of Section IV using an indicator variable measuring whether a given loan became delinquent as a dependent variable and the standard set of pre-CRA exam and CRA-eligible tract indicator variables. The first three columns of the table examine delinquencies during the year following origination, in which the delinquency indicator variable takes on a value of one if the loan is 30, 60, or 90 days' delinquent. As explained earlier, we estimate these regressions using OLS, given the large number of fixed effects along several dimensions.

The results presented in the table show that delinquency rates increase around CRA examination rates, especially for loans made in CRA-target tracts. For example, focusing on the third column, loans made in the quarter following the initiation of a CRA exam to borrowers in non-CRA-target tracts have a 0.1 percentage point higher 90-day delinquency rate as compared to loans made by control group banks. This effect is economically large, representing an 8.3 percent increase in the average 90-day delinquency rate of 1.2 percent. The equivalent effect in CRA-target tracts is even more pronounced: in these tracts, loans made in the quarter following the initiation of a CRA exam have a 0.4 percentage point higher delinquency rate, representing a 33 percent increase compared to the average 90-day delinquency rate.

We find similar results with similar magnitudes when we define delinquency as more than 30 or 60 days' delinquencies (columns 1 and 2) or when we examine delinquencies over a longer horizon of two years after the date of origination (columns 4 through 6). For example, loans made within CRA-target tracts in the quarter following the initiation of a CRA exam have a 0.8 percentage point higher 90-day delinquency rate within two years of loan origination, representing a 21 percent increase relative to the average delinquency rate. Interestingly, comparing the increase in delinquencies across the different quarters shows that the effect is largest for loans made three quarters after the onset of the CRA exam.

In sum, the results in table 5 suggest that periods around CRA examinations when there is elevated lending by treatment banks are also periods when loans made by these banks have higher delinquency rates, particularly in CRA-target tracts.

4. Risk and Loan Characteristics

We now assess the factors that may contribute to the increase in delinquency rates of loans made by treatment banks around CRA exam dates. We start by assessing whether observable characteristics of loans originated by treatment group banks around the CRA exam are different than those of loans originated by the control group banks. We are particularly interested in mortgage and borrower characteristics that have been shown to be related to the likelihood of loan default (Agarwal et al. 2012). These regressions are similar to the specifications in table 5 and use various observable loan and borrower characteristics as dependent variables. In particular, we use the FICO score of the borrower, a dummy variable for low-documentation mortgage, the LTV ratio of the mortgage, and interest rate charged on the mortgage. As explained earlier, we estimate these regressions using OLS, given the large number of fixed effects along several dimensions.

The results are reported in table 6. As the coefficients on different quarter indicators around the CRA examination demonstrate, there are some changes in loan characteristics along observable characteristics. However, the economic significance of most of these characteristics is very modest. For example, consider the case of FICO scores. Our results suggest that FICO score is lower in pre-CRA exam quarters and – as evident from the interaction term – that FICO scores are even lower in CRA-target tracts. However, the magnitude of these effects is quite small. For example, during the quarter before the CRA examination, FICO scores of loans originated by treated banks are 3.7 points lower, and loans that are originated to borrowers in CRA-target tracts are lower by additional 3.4 points, resulting in a decline of about 7 points, compared to an average FICO score of 713.9. Likewise, we find no economically meaningful change in interest rates or loan-to-value ratio loans offered in the vicinity of the CRA exam. One exception in our results is the proportion of low-documentation mortgages originated around the CRA exam. The increase in low-documentation loans is economically large with a coefficient of 0.048 (significant at the 5 percent level), representing an increase in low-documentation loans of 23.4 percent relative to the unconditional mean. The change in low-documentation loans seems consistent with the lending institution's elevating lending primarily on unobservable dimensions to convince regulators that loans extended to meet CRA criteria are not overtly risky. In unreported regressions we have also used other dependent variables such as the probability of being a balloon loan, an interest-only mortgage, a jumbo mortgage, and a buy-down mortgage. The inference on these variables is the same – there are no economically meaningful changes for these dimensions as well.

We now complement the analysis by analyzing the types of *borrowers* in the treatment and control groups three quarters before a CFA exam. In this analysis, we use the same sample as before but also employ HMDA data that have loan and applicant characteristics of loan applications. We first use the loan application data from HMDA and present the results in figures 8(a) and 8(b). In figure 8(a) we compare the kernel density of applicant income as of three quarters before the CRA exam date for both treatment group banks and control group banks, while figure 8(b) compares the kernel density of loan amount requests. As can be seen, both applicant income as well as loan amount distributions are very similar across treatment and control groups.[19]

Similar patterns are found when we use approved loans available in the HMDA data matched with the loan-level data instead of just loan applications in HMDA data. In particular, in figures 8(c) and 8(d), we plot the kernel density of FICO scores and loan-to-value ratios of approved loans in the matched data. Again, the treatment and control group loans are quite similar before the CRA examination.[20]

Overall, taken together with the evidence on higher delinquency rates presented in table 5, the results in table 6 suggest that the reduction in loan standards associated with elevated lending around CRA exams must be based primarily on unobservable characteristics. We argue that this pattern is consistent with banks' strategic attempts to convince regulators that the loans they extend that meet CRA criteria are not overtly risky. This behavior is likely to help these banks comply with the CRA's overarching mandate of "encouraging financial institutions to help meet the credit needs of the local communities in which they are chartered, *consistent with safe and sound operation*" (Section 802).[21]

C. Further Tests

1. Time Series Evidence

[19] For instance, focusing on applicant income in the HMDA data, the coefficient on the treatment dummy variable is 0.503, implying an economically insignificant $503 difference between treatment and control groups, or 0.58 percent of the approximately $86,000 sample mean.

[20] For instance, the average FICO scores across treatment and control groups are not economically or statistically significant. In the FICO score specification, the coefficient on the treatment dummy variable is an insignificant -0.891 compared to a mean FICO score of 714.12. Similarly, in the LTV ratio specification, the coefficient on the treatment dummy variable is an insignificant -0.09 compared to a mean LTV ratio of 71.82.

[21] Another potential interpretation of these findings is that treatment group banks did not change their screening standards relative to control group banks, granting loans to borrowers of similar quality around the CRA exam. Rather, the reason for elevated defaults is that borrowers who receive loans around the CRA exam change their behavior strategically after they receive the loan. This is highly unlikely since we know of no particular benefit to the borrowers who received loans closer to the CRA exam from treatment group banks relative to those from control group banks, or relative to borrowers from treatment group banks further away from the exam. See Mayer et al. 2011 for an example of strategic behavior of borrowers in response to benefits due to a legal settlement.

We now turn to investigate whether banks' responses to the CRA examinations have changed over time. Our analysis here is motivated by the fact that securitization – the act of originating loans and selling them to investors – changed dramatically during our sample period. In particular, the private securitization market – in which loans from lenders are packaged and sold to private investors – heated up especially between 2004 and 2006 (Keys et al. 2012). In contrast, the period 2007–2009 saw a drastic contraction of private securitization market but a concurrent expansion in the government-sponsored enterprise (GSE) securitization market – in which loans from lenders are packaged and sold to GSEs in adherence with GSE underwriting standards. We conjecture that banks are more likely to originate loans to risky borrowers around CRA examinations when they have an avenue to securitize and pass these loans to private investors after the exam. There are at least two reasons why banks may be less likely to originate risky loans under the CRA when GSE securitization is the primary avenue for loan sales. First, GSEs have stricter underwriting guidelines than private investors for lenders (Keys et al. 2012). Second, GSEs tend to face more scrutiny from regulators and market participants given their large role in the mortgage market (e.g., in the aftermath of the crisis). Thus, we expect banks that are subject to CRA examination to originate more risky loans in times of examinations especially during the 2004–2006 period.

We test the effects of the private securitization market on the origination of loans to risky borrowers around CRA evaluations by estimating our original model but including interactions of different time periods with the dummies that capture vicinity of the CRA exam for treatment group banks. We use three two period dummies that capture whether the time period is between 2004 and 2006 or between 2007 and 2009 (1999–2003 is the omitted category). Our focus is on the differential behavior between treated and control bank groups during the 2004–2006 period. This allows us to extend our previous analysis that hinged on the differential behavior between treatment group and control group banks. We now add another layer of identification that is based on the time-series variation in the market for securitization. As before, our analysis controls for tract*month fixed effects as well as four quarter dummies to capture general seasonality in lending and loan characteristics. For ease of presentation, we estimate this model with just the pre-exam and post-exam quarters (i.e., an average effect across CRA and non-CRA tracts). The results of this estimation are presented in figure 9(a), in which we estimate the regression using HMDA data and loan originations as the dependent variable. Figure 9(b) presents an analogous specification using 90-day delinquencies as dependent variable and employing the matched data.

The results presented in figure 9(a) confirm our earlier finding that banks in the treatment group are more likely to originate mortgages relative to control group banks around CRA exams. More important, we find a differential increase in the elevated lending around the CRA exams during the 2004–2006 period and to some extent in the 2007–2009 period relative to the1999–2003 period.[22] One reason for this behavior could be that the boom in securitized lending in the private markets during 2004–2006 and to the GSEs during 2007–2009 gave banks an avenue to park "potentially risky" loans off their balance sheets. However, at the same time, originating these loans near the time of a CRA exam would allow these banks to maintain their CRA-induced lending goals, since it takes a few months to securitize loans after they have been originated (Keys et al. 2012).

The more interesting part of the analysis relates to the nature of the performance of loans around the CRA exam. The results in figure 9(b) show that our earlier findings that pertain to worse performance of loans originated by the treatment group banks are driven in a large part by the 2004–2006 period. In particular, the performance worsens for the loans originated by treatment banks during the years 2004 to 2006.[23] Interestingly, while we did find some evidence of elevated lending during the 2007–2009 period, the performance of loans originated during this period is no different than those originated during the 1999–2003 period. This could potentially reflect stringent securitization practices employed by GSEs during the 2007–2009 period in the aftermath of the crisis.

Taken together, we find evidence for elevated lending by banks in the treatment group around the CRA exam during the 2004–2006 period. Moreover, there is concurrent evidence that the performance of loans originated by the treatment group banks around the CRA exam are in particular worse than those originated by the control group banks during the 2004–2006 period. This is also the period when private securitization boomed and might therefore reflect an unexplored channel through which this market induced risky lending in the economy.

2. Auxiliary Findings

We now discuss several results that confirm the robustness of our findings. For brevity, we discuss most of these results without reporting them in the paper.[24] First, we conduct our analysis

[22] Note that we also estimate specifications where we assess changes in lending in CRA and non-CRA tracts similar to specification in figure 6. We find that the differential change in pattern of elevated lending across years is driven by non-CRA tracts. It suggests that most banks in our sample were already exploiting demand in the CRA tracts that tend to be smaller. The additional demand for loans that would meet CRA lending criteria the banks were able to cater more in the larger non-CRA eligible tracts.

[23] Similar to the pattern in elevated lending in 2004–2006 being driven by non-CRA tracts, this increase in defaults during 2004–2006 is also largely driven by non-CRA tracts.

[24] These results are available from the authors on request.

on the loan performance using a dataset of private-label securities of MBS/ABS market, which has a better coverage of subprime and Alt-A loans. As explained in Section III, we are unable to separate regions into CRA-eligible and non-CRA-eligible tracts. Moreover, the analysis can be conducted for only a handful of banks (74) over a limited time period (2001–2006). Regardless of these disadvantages, table 7 shows that there is a deterioration in the performance of loans originated by treatment group banks relative to control group banks in the period around the CRA exam. Note that we conduct the analysis combining the CRA and non-CRA tracts since the data do not allow us to obtain information at a finer geographical unit than zip codes. However, given this constraint, we also interpret the magnitudes of these results with caution since the identification using these data is not as tightly accounting for local demand conditions as the matched sample employed earlier (zip*month versus tract*month fixed effects).

Second, we complement the analysis on the heterogeneity of lending across bank size (table 4) by examining the delinquencies of these elevated loans. Recall that we find that elevated lending around the quarters of a CRA exam was concentrated in large banks. Figure 10 reports the results on 90-day delinquency within the two-year horizon for the banks in the largest size tercile.[25] As can be observed, there is a clear pattern of increased defaults for loans made by these banks in quarters around the exam. Moreover, the effects are larger for loans made within CRA tracts. In unreported tests we find no such pattern for banks in the middle and lower-size tercile. These patterns are consistent with our results on elevated lending discussed earlier.

Third, we consider alternative definitions of the CRA exam dates. Rather than use the actual exam date to mark the quarter when the exam occurs, we repeat our analysis using the date on which the exam report is officially submitted by the regulators. In particular, we re-estimate the regressions of Table 2, assessing lending volume around the report dates by effectively using the date at which the official report is completed and submitted as the "pseudo" exam date. Because of the large time lag between the exam date and the official report date – as shown in Figure 5 – it is not surprising that we find a much weaker pattern of elevated lending around official exam report-dates relative to those described in Table 2. Similarly, we repeat the analysis in Table 5 using report dates instead of exam dates, and find that the pattern of defaults is reversed for many of the coefficients of interest. Specifically, when conducting our analysis around the report dates, we find that loans made by treatment banks are *less* likely to default. This pattern is likely driven by the long lag between exam dates and report dates as banks in the *treatment group* may begin countering the distortion in their lending around actual CRA exams

[25] We obtain similar inferences with delinquencies defined within one year from origination.

by originating less risky loans once exam ends In addition, this pattern could as well arise because some of the banks in the *control group* start facing CRA exams – and as a result originate riskier loans – as we move further away from the actual exam date of banks in the treatment group.

Finally, we assess the robustness of our findings in two additional ways. First, we extend the HMDA sample to include all the banks in the data. Therefore, at a given point in time, the control set of banks includes not only those facing a CRA exam during the sample period but also those that never face a CRA exam (e.g., are not depository institutions). Including these banks allows us potentially to better account for a richer set of loan applicants in a given tract and month. We document a pattern similar to our earlier findings in both loan origination and delinquency. Relative to control banks, those in the treatment group originate more mortgages around CRA exams and these loans are also worse performing. Additionally, we assess the robustness of the estimates by clustering on different units. In particular, we cluster at state-quarter and state levels and find that the nature of our findings remains unchanged.

VI. Conclusion

We use exogenous variation in banks' incentives to conform to the standards of the Community Reinvestment Act around regulatory exam dates to trace out the effect of the CRA on lending activity. Our empirical strategy compares the lending behavior of banks undergoing CRA exams within a given census tract in a given month to the behavior of banks operating in the same census tract-month that do not face these exams. We find that adherence to the act leads to riskier lending by banks: in the six quarters surrounding the CRA exams, lending is elevated on average by about 5 percent and these loans default about 15 percent more often. These patterns are accentuated in CRA-eligible census tracts and are concentrated among large banks. The effects are strongest during the time period when the market for private securitization was booming.

We note that our estimates do not provide an assessment of the *full* impact of the CRA. This is because we are examining the effect of CRA evaluations relative to a baseline of banks not undergoing an exam. To the extent that there are adjustment costs in changing lending behavior, this baseline level of lending behavior itself may be shifted toward catering to CRA compliance. Because our empirical strategy nets out the baseline effect, our estimates of CRA evaluations provide a lower bound to the actual impact of the Community Reinvestment Act. If adjustment costs in lending behavior are large and banks can't easily tilt their loan portfolio

toward greater CRA compliance, the full impact of the CRA is potentially much greater than that estimated by the change in lending behavior around CRA exams.

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Table 1. Descriptive Statistics

This table presents summary statistics of the different variables used in our analysis. Panel A presents the statistics related to the CRA exam data in our sample. Panel B presents statistics related to loan applications in the HMDA data for lenders that are also present in the CRA exam data. Panel C presents statistics related to loans in the HMDA data matched with loan-level data. Panel D presents statistics related to loans in the private-label ABS/MBS loan sample. Data reported span 1999–2009.

Panel A. CRA exam schedule, 19992009

	Observations	Mean	Std. Dev.
CRA rating	12880	2.78	0.70
CRA exams per bank	5651	2.28	1.04
Bank assets	12877	1.28	10.99
Quarters between CRA exams	10768	15.25	5.56

Panel B. Loan application for banks that participate in CRA exams, 1999–2009, in HMDA

	Observations	Mean	Std. Dev.
Approved loans	94499633	0.72	0.45
Fraction CRA target tracts	94499633	0.17	0.38
Fraction of applications in CRA exam	94499633	0.05	0.23
Fraction conventional loans	94499633	0.93	0.26
Fraction refinance loans	83640103	0.62	0.49
Fraction owner-occupied	93932830	0.91	0.29
Bank assets, millions	94499633	222.69	353.32
Applicant income, $1000s	88999329	89.03	142.03
Loan amount, $1000s	94499633	152.26	290.07
Applicant income, $1000s (excludes 1% tails)	87061417	80.98	61.48
Loan amount, $1000s (excludes 1% tails)	92564677	141.36	120.53
Fraction minority applicants	80254097	0.17	0.38
Fraction female applicants	84981435	0.29	0.46

Panel C. Loans originated in HMDA data matched with loan-level data, 1999–2009

	Observations	Mean	Std. Dev.
Fraction CRA target tracts	15222189	0.15	0.36
Fraction of applications in month of CRA exam or 3 months before	15222189	0.04	0.19
Fraction conventional loans	15222189	0.88	0.33
Fraction refinance loans	15162597	0.51	0.50
Fraction owner-occupied	15207979	0.90	0.30
Bank assets, millions	15222189	260.43	340.11
Applicant income, $1000s	14220468	100.34	147.77
Loan amount, $1000s	15222189	184.11	172.42
Applicant income, $1000s (excludes 1% tails)	13927138	91.74	69.55
Loan amount, $1000s (excludes 1% tails)	14907780	175.49	124.94
Fraction minority applicants	13544586	0.15	0.36
Fraction female applicants	14349548	0.28	0.45
30 days' delinquent within 1 year of origination	15222189	0.07	0.26
60 days' delinquent within 1 year of origination	15222189	0.02	0.15
90 days' delinquent within 1 year of origination	15222189	0.01	0.11
30 days' delinquent within 2 years of origination	15222189	0.12	0.33
60 days' delinquent within 2 years of origination	15222189	0.05	0.22
90 days' delinquent within 2 years of origination	15222189	0.04	0.19
Balloon flag	15222089	0.02	0.14
Buy-down flag	15222189	0.01	0.09
Interest only flag	14875134	0.06	0.24
Jumbo flag	15222189	0.08	0.27
Pre-payment penalty flag	14218853	0.11	0.31
Loan term (months)	15222150	320.59	76.97
ARM flag	15210316	0.17	0.38
Low documentation flag	5653792	0.20	0.40
Grade B or C flag	15222189	0.04	0.19
FICO score at origination	13018311	713.85	64.05
LTV ratio	14916491	82.47	10170.08
FICO score (excludes 1% tails)	13017444	713.88	63.89
LTV ratio (excludes 1% tails)	14673676	71.82	20.62

Panel D. Loans originated in private-label ABS/MBS loan-level data for lenders who undergo CRA exam, 1999–2009

	Observations	Mean	Std. Dev.
Fraction CRA target tracts	3075002	0.26	0.44
Fraction of applications in month of CRA exam or 3 months before	3075002	0.02	0.13
Bank assets, millions	787092	149.25	249.09
30 days' delinquent within 1 year of origination	3075002	0.23	0.42
60 days' delinquent within 1 year of origination	3075002	0.10	0.30
90 days' delinquent within 1 year of origination	3075002	0.06	0.24
30 days' delinquent within 2 years of origination	3075002	0.37	0.48
60 days' delinquent within 2 years of origination	3075002	0.22	0.42
90 days' delinquent within 2 years of origination	3075002	0.16	0.37
Low documentation flag	3070253	0.49	0.50
Back-end DTI ratio	2598255	39.44	9.47
FICO score	3066161	654.08	68.29
Balloon mortgage flag	3075002	0.15	0.36
Interest only flag	3030762	0.22	0.42
Pre-payment penalty flag	3025608	0.57	0.50
Negative amortization flag	2223413	0.08	0.27
LTV ratio	3075002	82.54	13.66

Table 2. Elevated Lending in CRA and Non-CRA Tracts

This table presents results from a specification that evaluates dynamics of elevated lending in CRA-eligible tract as well as non-CRA-eligible tracts for three quarters on either side of the exam. The dependent variable is an indicator variable that takes a value one if the loan application is accepted. *Pre-exam 1, Pre-exam 2,* and *Pre-exam3* equal one if the loan application is submitted to a bank that will undergo a CRA exam in one, two, and three quarters, respectively. CRA target tract is a dummy that equals one for tracts with median income less than 80% of median income at the MSA level. Data used in from HMDA and spans 1999–2009. Standard errors are clustered at state*year level, and p-values are reported in squared brackets. ***, **, and * represent significance at 1%, 5%, and 10%, respectively.

	Y= 1 if a loan is originated		
Mean		0.7203	
SD		0.4488	
Pre-exam 1	0.051***	0.060***	0.056***
	[0.000]	[0.000]	[0.000]
Pre-exam 1 * CRA target tract			0.023***
			[0.000]
Pre-exam 2	0.040***	0.050***	0.048***
	[0.000]	[0.000]	[0.000]
Pre-exam 2 * CRA target tract			0.013***
			[0.000]
Pre-exam 3	0.040***	0.050***	0.047***
	[0.000]	[0.000]	[0.000]
Pre-exam 3 * CRA target tract			0.016***
			[0.000]
Post-exam 1		0.063***	0.060***
		[0.000]	[0.000]
Post-exam 1 * CRA target tract			0.022***
			[0.000]
Post-exam 2		0.058***	0.054***
		[0.000]	[0.000]
Post-exam 2 * CRA target tract			0.021***
			[0.000]
Post-exam 3		0.033***	0.032***
		[0.000]	[0.000]
Post-exam 3 * CRA target tract			0.010***
			[0.000]
Observations	94397692	94397692	94397692
Years:	1999-2009	1999-2009	1999-2009
Tract*month fixed effects:	Y	Y	Y
Quarter fixed effects:	Y	Y	Y
# of banks	6028	6028	6028

Table 3. Elevated Lending in CRA and Non-CRA Tracts – Stratification by Applicant Income

This table presents results from a specification that evaluates dynamics of elevated lending in CRA-eligible tracts as well as non-CRA-eligible tracts for three quarters on either side of the exam in samples stratified by income of applicant. The dependent variable is an indicator variable that takes a value one if the loan application is accepted. *Pre-exam 1, Pre-exam 2,* and *Pre-exam3* equal one if the loan application is submitted to a bank that will undergo a CRA exam in one, two, and three quarters, respectively. CRA target tract is a dummy that equals one for tracts with median income less than 80% of median income at the MSA level. Data are from HMDA and span 1999-2009. Standard errors are clustered at state*year level, and p-values are reported in square brackets. ***, **, and * represent significance at 1%, 5%, and 10%, respectively.

		Y=1 if loan originated		
	Mean	0.6247	0.7348	0.7991
	SD	0.4842	0.4415	0.4007
Pre-exam 1		0.060***	0.054***	0.035***
		[0.000]	[0.000]	[0.000]
Pre-exam 1 * CRA target tract		0.004	0.011**	0.017***
		[0.120]	[0.031]	[0.000]
Pre-exam 2		0.044***	0.044***	0.033***
		[0.000]	[0.000]	[0.000]
Pre-exam 2 * CRA target tract		-0.004	0.001	0.014***
		[0.213]	[0.791]	[0.000]
Pre-exam 3		0.042***	0.046***	0.033***
		[0.000]	[0.000]	[0.000]
Pre-exam 3 * CRA target tract		-0.001	0.002	0.017***
		[0.791]	[0.490]	[0.000]
Post-exam 1		0.059***	0.054***	0.039***
		[0.000]	[0.000]	[0.000]
Post-exam 1 * CRA target tract		0.003	0.010***	0.015***
		[0.423]	[0.001]	[0.000]
Post-exam 2		0.055***	0.051***	0.035***
		[0.000]	[0.000]	[0.000]
Post-exam 2 * CRA target tract		0.002	0.010***	0.014***
		[0.665]	[0.005]	[0.000]
Post-exam 3		0.032***	0.023***	0.021***
		[0.000]	[0.000]	[0.004]
Post-exam 3 * CRA target tract		-0.008*	-0.003	0.011***
		[0.066]	[0.435]	[0.000]
Observations		28655911	28996311	29314983
Income tercile		Bottom	Medium	Top
Years:		1999-2009	1999-2009	1999-2009
Tract*month fixed effects:		Y	Y	Y
Quarter fixed effects:		Y	Y	Y
# of banks		5844	5877	5948

Table 4. Elevated Lending in CRA and Non-CRA tracts – Stratification by Bank Size

This table presents results from a specification that evaluates dynamics of elevated lending in CRA-eligible tracts as well as non-CRA-eligible tracts for three quarters on either side of the exam in samples stratified by lender size. The dependent variable is an indicator variable that takes a value one if the loan application is accepted. *Pre-exam 1, Pre-exam 2*, and *Pre-exam3* equal one if the loan application is submitted to a bank that will undergo a CRA exam in one, two, and three quarters, respectively. CRA target tract is a dummy that equals one for tracts with median income less than 80% of median income at the MSA level. Data are HMDA data matched with loan-level data and span 1999-2009. Standard errors are clustered at state*year level, and p-values are reported in square brackets. ***, **, and * represent significance at 1%, 5%, and 10%, respectively.

		Y=1 if loan originated			
	Mean	0.8491	0.7397	0.6900	0.6900
	SD	0.3580	0.4388	0.4625	0.4625
Pre-exam 1		0.012***	-0.015***	0.071***	0.070***
		[0.000]	[0.009]	[0.000]	[0.000]
Pre-exam 1 * CRA target tract		0.005	0.004	0.041***	0.030***
		[0.185]	[0.385]	[0.000]	[0.000]
Pre-exam 2		-0.045***	-0.011*	0.054***	0.050***
		[0.000]	[0.099]	[0.000]	[0.000]
Pre-exam 2 * CRA target tract		-0.030***	-0.003	0.024***	0.013***
		[0.000]	[0.538]	[0.000]	[0.010]
Pre-exam 3		-0.055***	-0.013	0.064***	0.052***
		[0.000]	[0.112]	[0.000]	[0.000]
Pre-exam 3 * CRA target tract		-0.031***	-0.004	0.031***	0.023***
		[0.000]	[0.236]	[0.000]	[0.000]
Post-exam 1		0.025***	-0.010	0.078***	0.085***
		[0.000]	[0.123]	[0.000]	[0.000]
Post-exam 1 * CRA target tract		0.017***	0.005	0.039***	0.024***
		[0.000]	[0.277]	[0.000]	[0.000]
Post-exam 2		0.022***	-0.023***	0.065***	0.062***
		[0.000]	[0.001]	[0.000]	[0.000]
Post-exam 2 * CRA target tract		0.016***	0.004	0.031***	0.021***
		[0.000]	[0.539]	[0.000]	[0.000]
Post-exam 3		0.017***	-0.012**	0.018**	0.041***
		[0.000]	[0.034]	[0.044]	[0.000]
Post-exam 3 * CRA target tract		0.014**	0.006	0.010***	0.020***
		[0.010]	[0.178]	[0.000]	[0.000]
Observations		9752230	25888791	49436963	49436963
SUBSAMPLES		Bank Assets < $1 Billion	Bank Assets > $1B but < $50B	Bank Assets > $50B	Bank Assets > $50B
Tract*month fixed effects:		Y	Y	Y	Y
Quarter fixed effects:		Y	Y	Y	Y
Bank fixed effects					Y
# of banks		5647	225	49	49

Table 5. Elevated Delinquencies in CRA and Non-CRA Tracts

This table presents results from a specification that evaluates dynamics of elevated delinquencies in CRA-eligible tracts as well as non-CRA-eligible tracts for three quarters on either side of the exam. The dependent variable is an indicator variable which takes a value one if the loan application is 30, 60, or 90 days' delinquent within a particular horizon from origination. *Pre-exam 1, Pre-exam 2,* and *Pre-exam3* equal one if the loan application is submitted to a bank that will undergo a CRA exam in one, two, and three quarters, respectively. CRA target tract is a dummy that equals one for tracts with median income less than 80% of median income at the MSA level. Data are HMDA data matched with loan-level data and span 1999-2009. Standard errors are clustered at state*year level, and p-values are reported in square brackets. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

	Delinquent within 1 year of origination			Delinquent within 2 years of origination		
	30 days	60 days	90 days	30 days	60 days	90 days
Mean	0.072	0.023	0.012	0.127	0.055	0.038
SD	0.258	0.148	0.111	0.333	0.228	0.192
Pre-exam 1	0.008***	0.003***	0.002***	0.009***	0.003***	0.002**
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.023]
Pre-exam 1 * CRA target tract	0.008**	0.004**	0.003**	0.010***	0.005**	0.005**
	[0.013]	[0.041]	[0.011]	[0.005]	[0.026]	[0.028]
Pre-exam 2	0.007***	0.002***	0.002***	0.009***	0.002*	0.002**
	[0.000]	[0.002]	[0.003]	[0.000]	[0.054]	[0.034]
Pre-exam 2 * CRA target tract	0.004	0.000	0.001	0.005	-0.000	-0.001
	[0.237]	[0.793]	[0.367]	[0.255]	[0.920]	[0.713]
Pre-exam 3	0.004**	0.001	0.000	0.005**	0.000	-0.000
	[0.018]	[0.330]	[0.376]	[0.015]	[0.747]	[0.757]
Pre-exam 3 * CRA target tract	0.008**	0.003*	0.000	0.008	0.004	0.002
	[0.031]	[0.095]	[0.695]	[0.129]	[0.136]	[0.324]
Post-exam 1	0.007***	0.002**	0.001***	0.008***	0.001	0.001*
	[0.000]	[0.010]	[0.003]	[0.000]	[0.152]	[0.068]
Post-exam 1 * CRA target tract	0.005	0.003*	0.003**	0.007**	0.005**	0.007***
	[0.112]	[0.086]	[0.030]	[0.036]	[0.029]	[0.004]
Post-exam 2	0.007***	0.003***	0.002***	0.010***	0.005***	0.005***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Post-exam 2 * CRA target tract	0.008**	0.006**	0.007***	0.012**	0.008**	0.009***
	[0.032]	[0.014]	[0.000]	[0.035]	[0.016]	[0.008]
Post-exam 3	0.010***	0.004***	0.004***	0.012***	0.006***	0.006***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.002]
Post-exam 3 * CRA target tract	0.017***	0.010***	0.009***	0.021***	0.014***	0.012***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	13012460	13012460	13012460	13012460	13012460	13012460
Years:	1999-2009	1999-2009	1999-2009	1999-2009	1999-2009	1999-2009
Tract*month fixed effects:	Y	Y	Y	Y	Y	Y
Quarter fixed effects:	Y	Y	Y	Y	Y	Y
Controls	Y	Y	Y	Y	Y	Y
# of banks	4434	4434	4434	4434	4434	4434

Table 6. Mortgage and Borrower Characteristics in Vicinity of CRA Exam

This table presents results from a specification that evaluates dynamics of mortgage and borrower characteristics in CRA-eligible tracts as well as non-CRA-eligible tracts for three quarters on either side of the exam. The dependent variable takes the characteristic of the mortgage or borrower. *Pre-exam 1, Pre-exam 2,* and *Pre-exam3* equal one if the loan application is submitted to a bank that will undergo a CRA exam in one, two, and three quarters, respectively. CRA target tract is a dummy that equals one for tracts with median income less than 80% of median income at the MSA level. Data are HMDA data matched with loan-level data and span 1999-2009. Standard errors are clustered at state*year level, and p-values are reported in squared brackets. ***, **, and * represent significance at 1%, 5% and 10%, respectively.

	FICO score	Low doc	Interest Rate	LTV ratio
Mean	713.883	0.205	6.114	71.817
SD	63.894	0.403	1.3	20.616
Pre-exam 1	-3.657***	0.021	0.005	0.376
	[0.001]	[0.181]	[0.798]	[0.190]
Pre-exam 1 * CRA target tract	-3.339***	-0.002	-0.009	0.062
	[0.000]	[0.890]	[0.495]	[0.749]
Pre-exam 2	-2.164*	0.048**	0.000	0.437
	[0.055]	[0.012]	[0.991]	[0.110]
Pre-exam 2 * CRA target tract	-2.116**	0.005	-0.001	-0.324*
	[0.028]	[0.680]	[0.968]	[0.078]
Pre-exam 3	-1.338	0.028	0.027*	0.028
	[0.253]	[0.181]	[0.060]	[0.913]
Pre-exam 3 * CRA target tract	-2.750***	-0.012	0.018	-0.122
	[0.002]	[0.340]	[0.300]	[0.653]
Post-exam 1	-1.981*	0.006	0.011	0.537**
	[0.054]	[0.675]	[0.563]	[0.041]
Post-exam 1 * CRA target tract	-2.757***	0.004	0.004	-0.111
	[0.007]	[0.781]	[0.780]	[0.566]
Post-exam 2	-3.511***	0.011	0.001	0.540*
	[0.003]	[0.617]	[0.942]	[0.078]
Post-exam 2 * CRA target tract	-3.555***	0.004	-0.009	0.213
	[0.001]	[0.817]	[0.385]	[0.408]
Post-exam 3	-4.684***	0.008	0.028	0.273
	[0.001]	[0.585]	[0.261]	[0.288]
Post-exam 3 * CRA target tract	-6.344***	0.003	-0.015	0.172
	[0.000]	[0.825]	[0.142]	[0.507]
Observations	13017444	5653792	14673676	14673676
Years:	1999-2009	1999-2009	1999-2009	1999-2009
Tract*month fixed effects	Y	Y	Y	Y
Quarter fixed effects	Y	Y	Y	Y
Banks	4434	3747	4434	4434

Table 7. Elevated Delinquencies Using Private-Label ABS/MBS Loan-Level Data

This table presents results from a specification that evaluates dynamics of elevated delinquencies for three quarters on either side of the exam. The dependent variable is an indicator variable that takes a value one if the loan application is 30, 60, or 90 days' delinquent within a particular horizon from origination. *Pre-exam 1, Pre-exam 2,* and *Pre-exam3* equal one if the loan application is submitted to a bank that will undergo a CRA exam in one, two, and three quarters, respectively. Data cover the private-label ABS/MBS loan market and span 1999-2009. Standard errors are clustered at state*year level, and p-values are reported in square brackets. ***, **, and * represent significance at 1%, 5%, and 10%, respectively.

	Delinquent within 1 year of origination			Delinquent within 2 years of origination		
	30 days	60 days	90 days	30 days	60 days	90 days
Mean	0.243	0.110	0.064	0.391	0.238	0.175
SD	0.429	0.313	0.245	0.488	0.426	0.380
Pre-exam 1	0.040***	0.011***	0.014***	0.032***	0.007*	0.015***
	[0.000]	[0.002]	[0.000]	[0.000]	[0.089]	[0.000]
Pre-exam 2	0.022***	0.008**	0.009***	0.014**	0.012***	0.019***
	[0.000]	[0.041]	[0.007]	[0.035]	[0.001]	[0.000]
Pre-exam 3	-0.004	-0.006***	-0.006***	0.005	0.001	-0.002
	[0.258]	[0.003]	[0.002]	[0.253]	[0.855]	[0.448]
Post-exam 1	0.038***	0.013***	0.012***	0.040***	0.020***	0.023***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Post-exam 2	0.064***	0.029***	0.021***	0.058***	0.038***	0.036***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Post-exam 3	0.058***	0.043***	0.042***	0.052***	0.060***	0.070***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Observations	2776308	2776308	2776308	2776308	2776308	2776308
Years:	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006	2001-2006
Zip*month fixed effects:	Y	Y	Y	Y	Y	Y
Quarter fixed effects:	Y	Y	Y	Y	Y	Y
# of banks	74	74	74	74	74	74

Figure 1. Distribution of Quarters Between Exams

This figure plots the kernel density of quarters between CRA exams for banks in our sample. Data span the period 1999–2009.

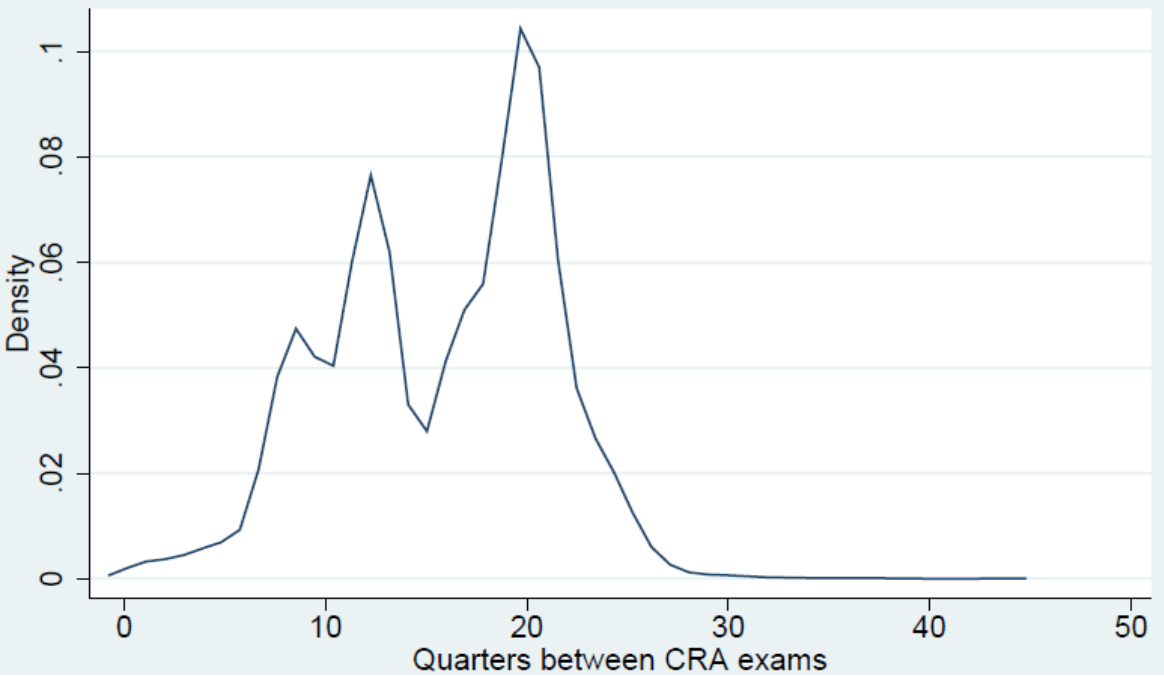

Figure 2. Number of Exams per Bank

This figure plots the number of CRA exams for each banks in our sample. Data span the period 1999–2009.

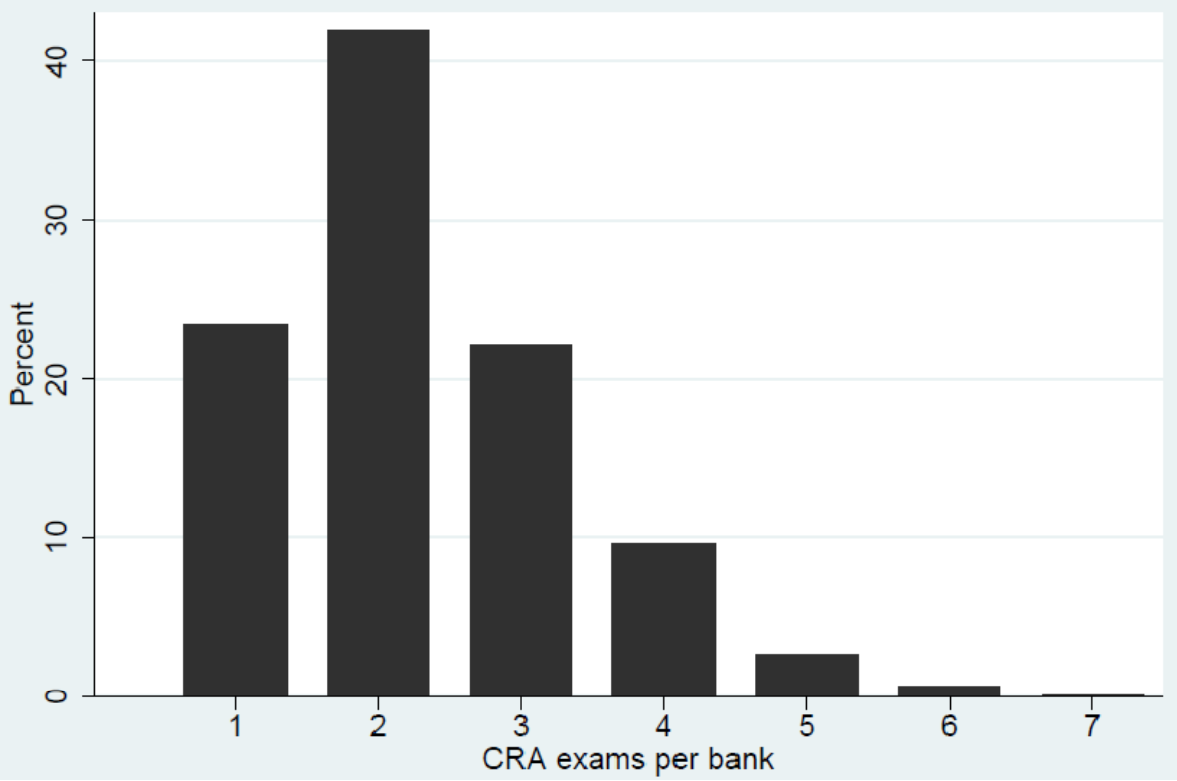

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Figure 3. Distribution of CRA Ratings

This figure plots the distribution of CRA ratings for each of the exams in our sample. The rating is on a five-point scale with a grade of one associated with an "Outstanding" rating and a grade of five associated with a "Substantial Non-compliance" rating. Data span the period 1999–2009.

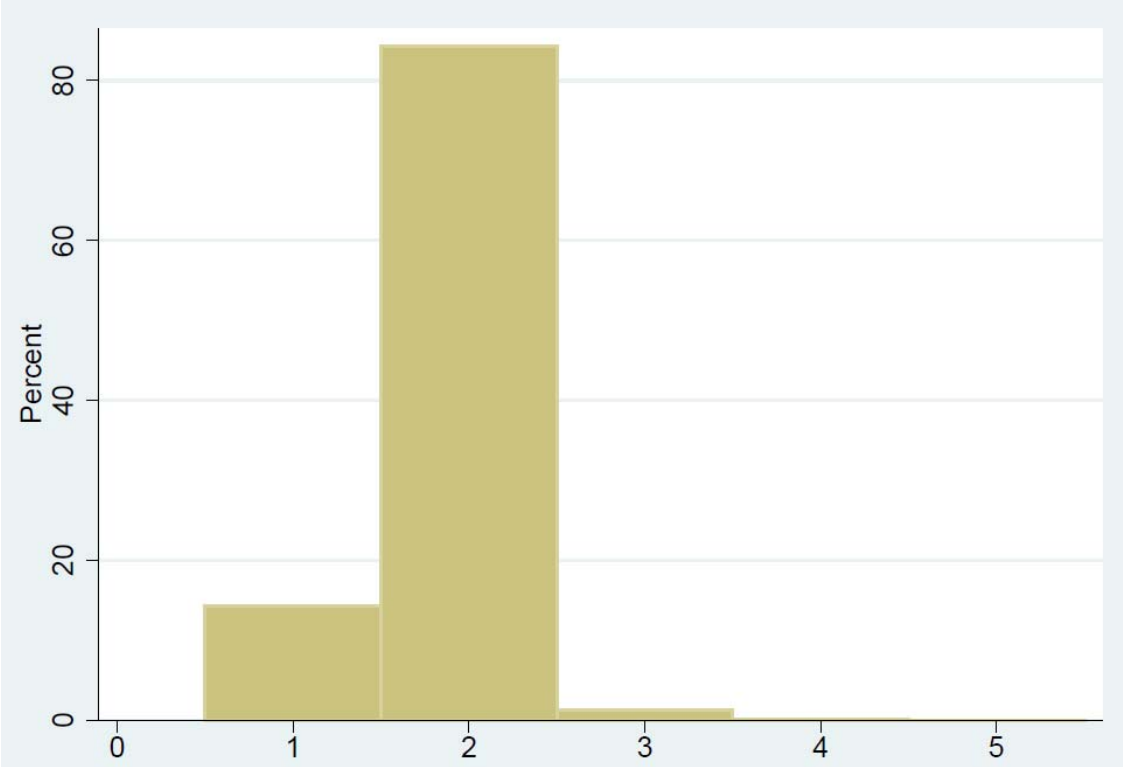

Figure 4. Time Series Evolution of CRA Exams

This figure plots the quarterly evolution of the number of CRA bank examinations over our sample period. Data span the period 1999–2009.

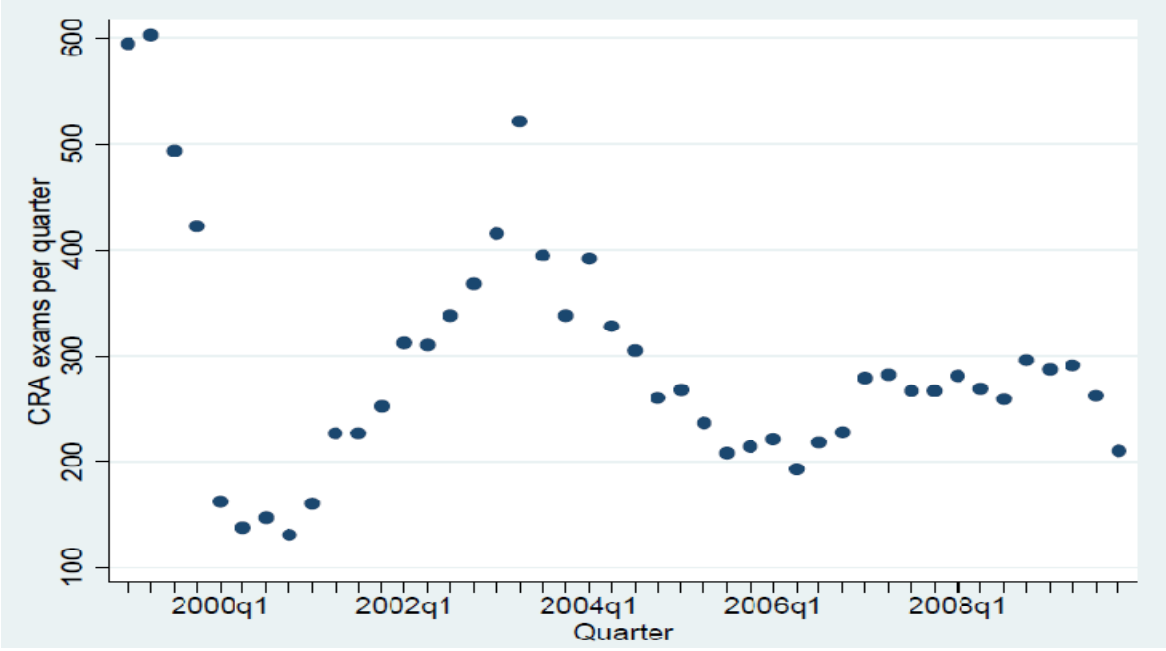

Figure 5. Time Gap Between Examination and Report Completion

This figure plots the months between the CRA bank examination and completion of the examination report over our sample period. Data span the period 1999–2009.

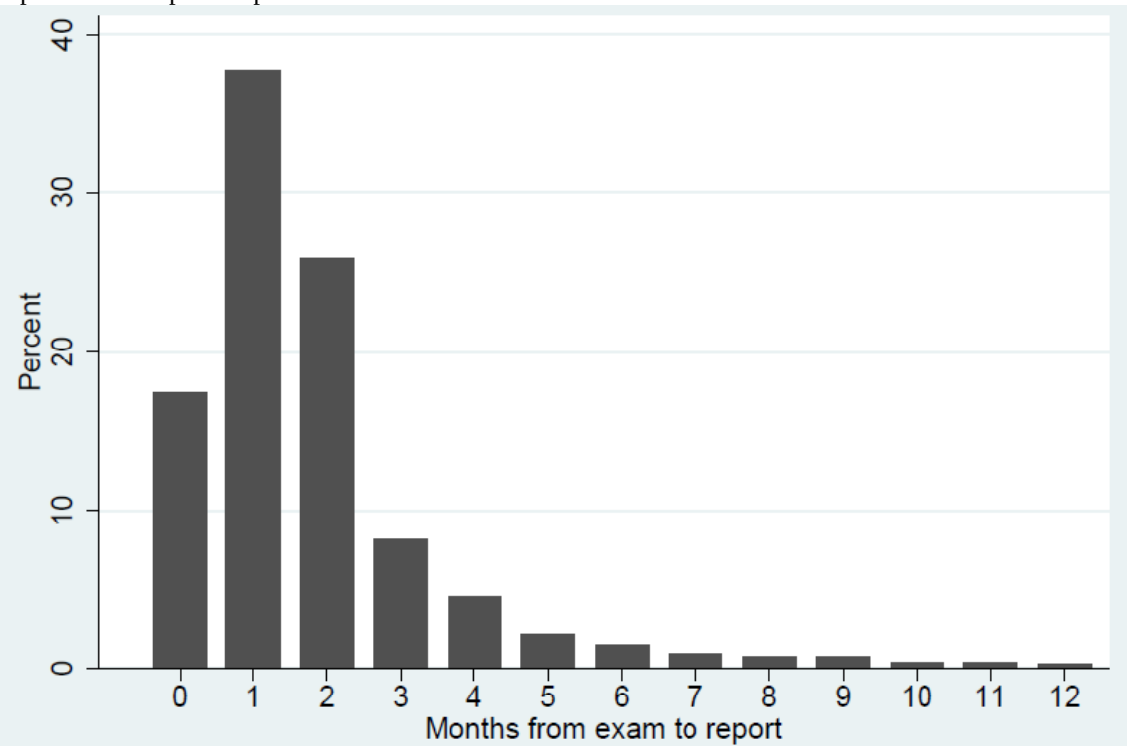

Figure 6. Elevated Lending in CRA and Non-CRA Tracts

This figure plots the dynamics of elevated lending in CRA-eligible tracts as well as non-CRA-eligible tracts for three quarters on either side of the exam. Coefficients on the pre- and post-exam dummies and on the interaction of these dummies with $CRAtract_c$ from table 3 are on the Y axis, and the quarters around the CRA exam are on the X axis. Data span 1999-2009.

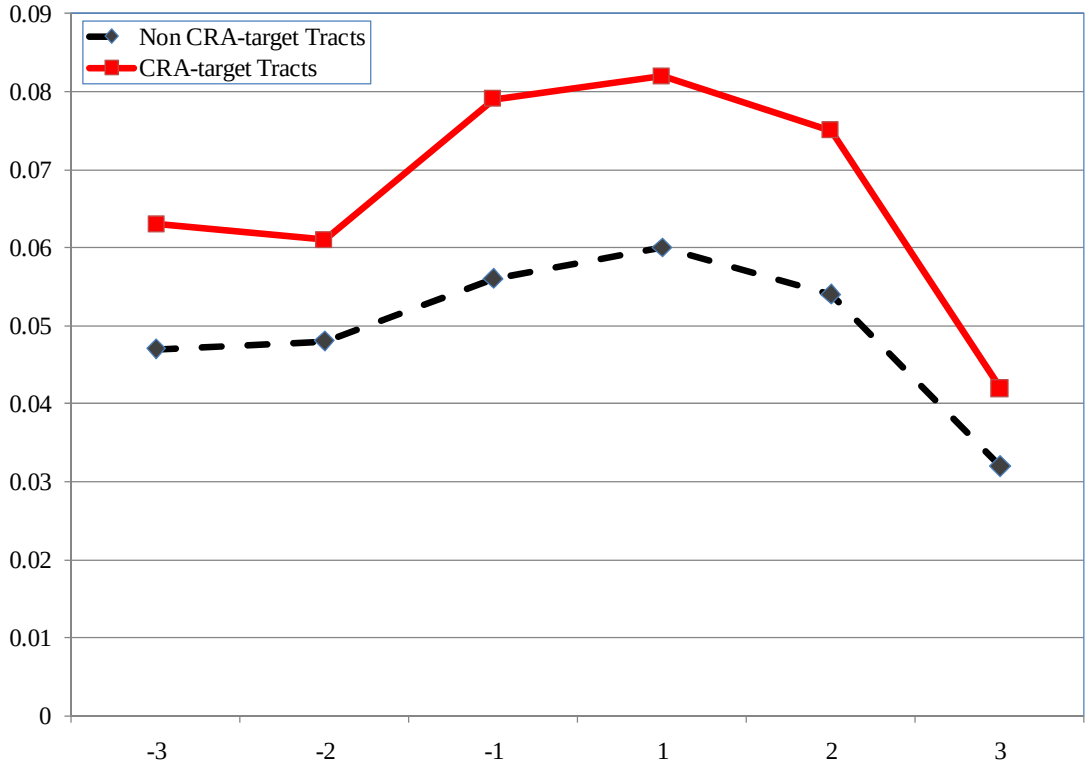

Figure 7. Elevated Lending in CRA and Non-CRA Tracts

This figure plots the dynamics of elevated lending in CRA-eligible tracts as well as non-CRA-eligible tracts for four quarters on either side of the exam. Coefficients on the pre- and post-exam dummies and on the interaction of these dummies with $CRAtract_c$ are on the Y axis, and the quarters around the CRA exam are on the X axis. Data span 1999–2009.

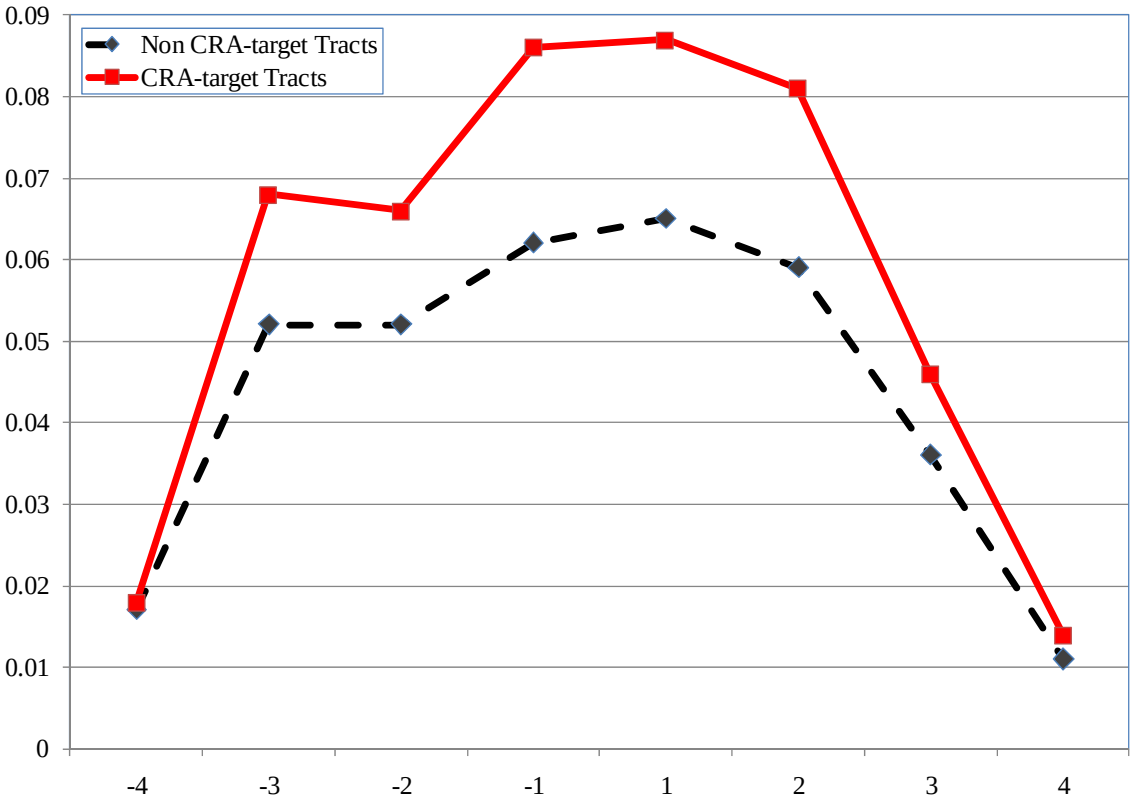

Figure 8(a). Borrower Income for Treated and Control Banks Three Quarters Before Exam

This figure plots the kernel density of applicant income as of three quarters before the CRA exam date for both treatment group banks (facing exams in three quarters) and control group banks. Data span 1999–2009.

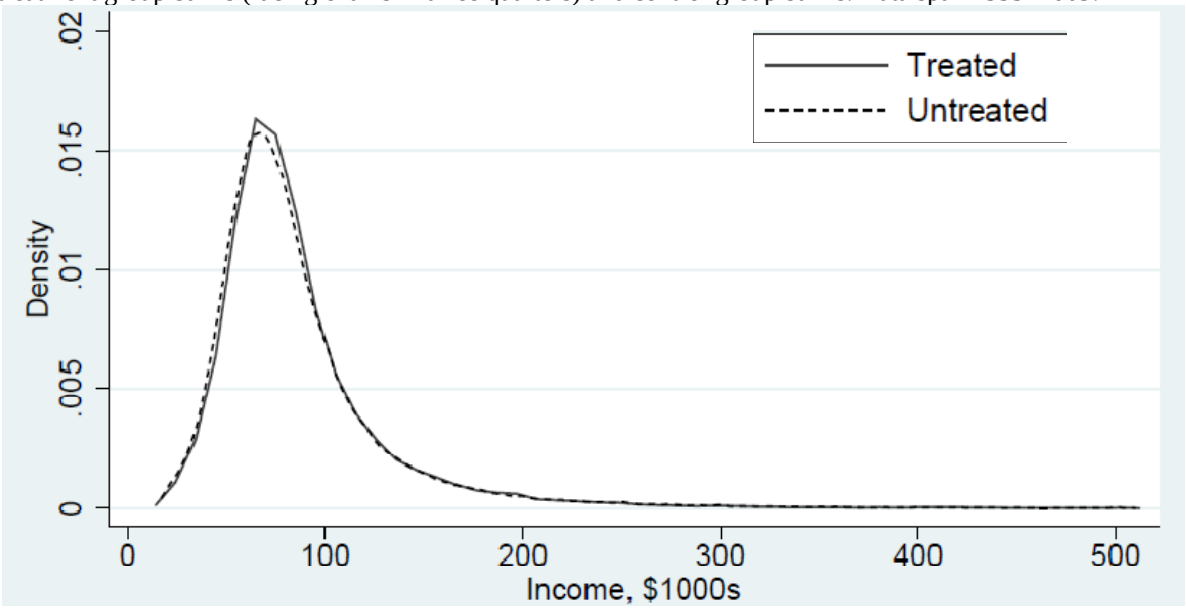

Figure 8(b). Loan Amount for Treated and Control Banks Three Quarters Before Exam

This figure plots the kernel density of loan amount as of three quarters before the CRA exam date for both treatment group banks (facing exams in three quarters) and control group banks. Data span 1999–2009.

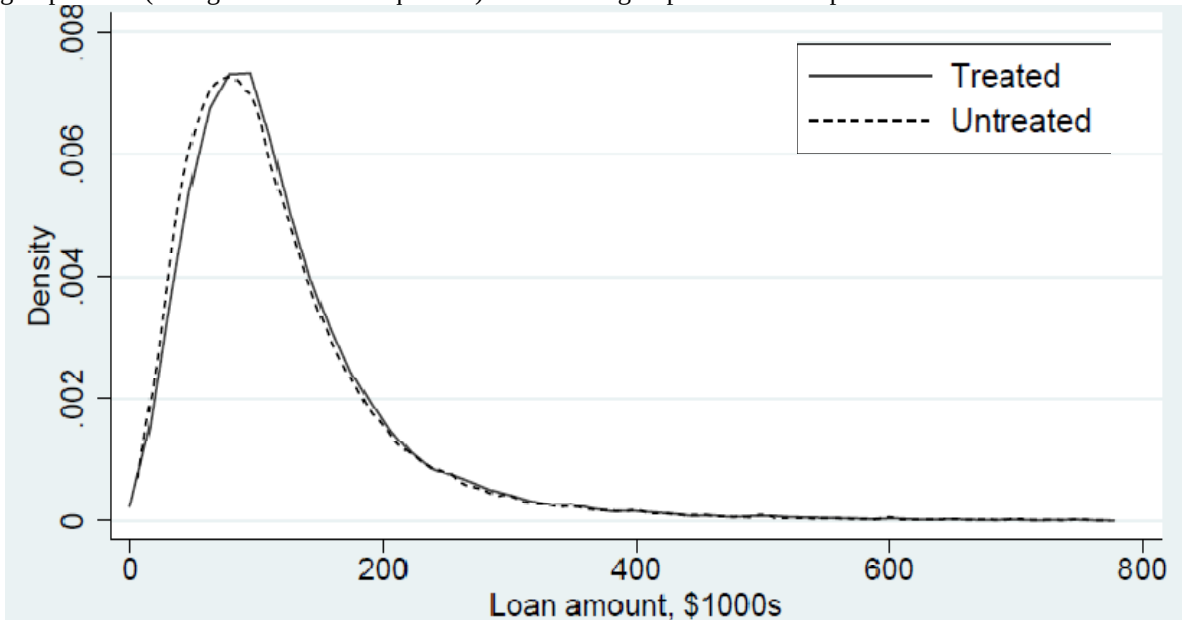

Figure 8(c). Borrower FICO in Treatment and Control Group Banks Three Quarters Before Exam

This figure plots the kernel density of borrower's credit score three quarters before the CRA exam date for both treatment group banks (facing exams in three quarters) and control group banks. The data correspond to —HMDA data matched with loan-level data for the period 1999–2009.

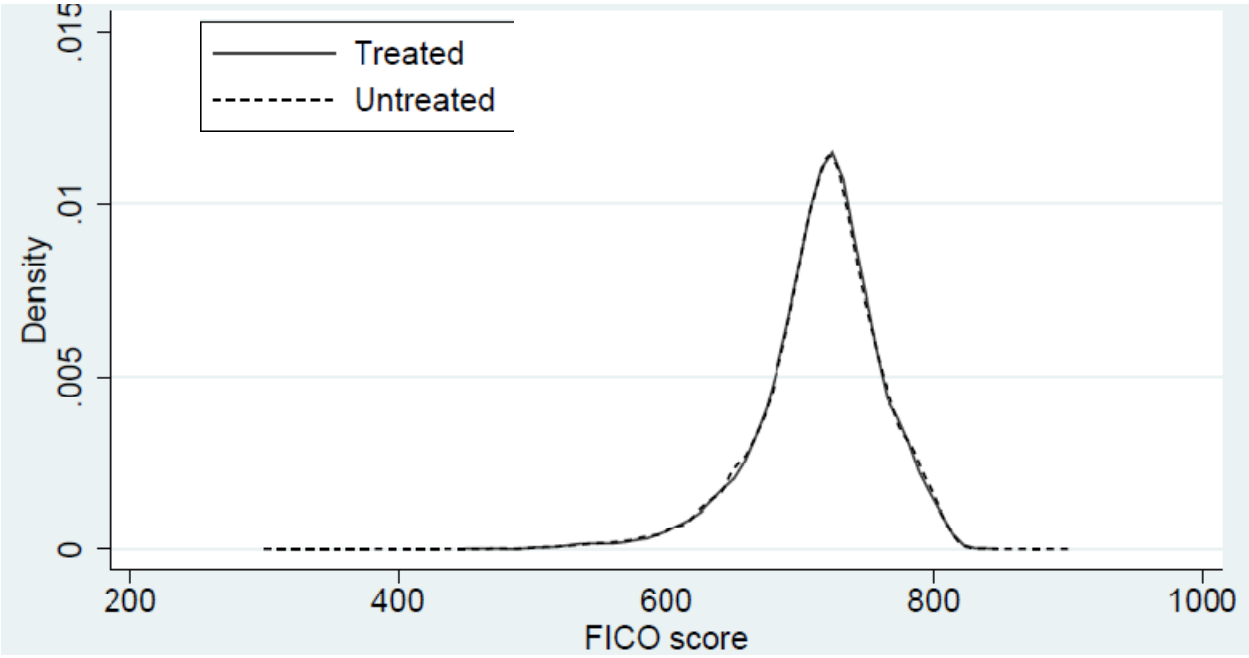

Figure 8(d). Mortgage LTV in Treatment Group and Control Group Bank Three Quarters Before Exam

This figure plots the kernel density of borrower's loan-to-value three quarters before the CRA exam date for both treated banks (facing exams in three quarters) and control banks. The data corresponds to HMDA data matched with loan-level data for the period 1999–2009.

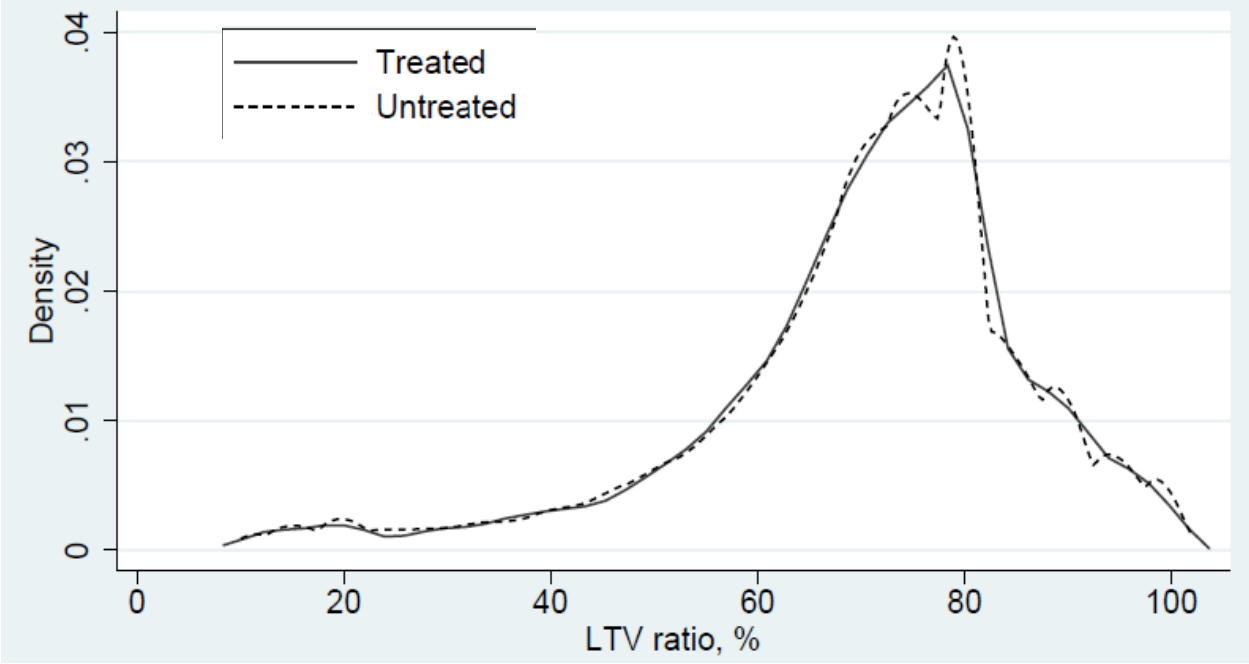

Figure 9(a). Elevated Lending Around CRA exams – Time Series Evolution

This figure plots the dynamics of average elevated lending in CRA-eligible and non-CRA-eligible tracts. We plot coefficients on pre- and post-exam dummies interacted with three period dummies (1999–2003, 2004–2006, 2007–2009) on the Y axis, and the quarters around the CRA exam date are on the X axis. Data span 1999–2009.

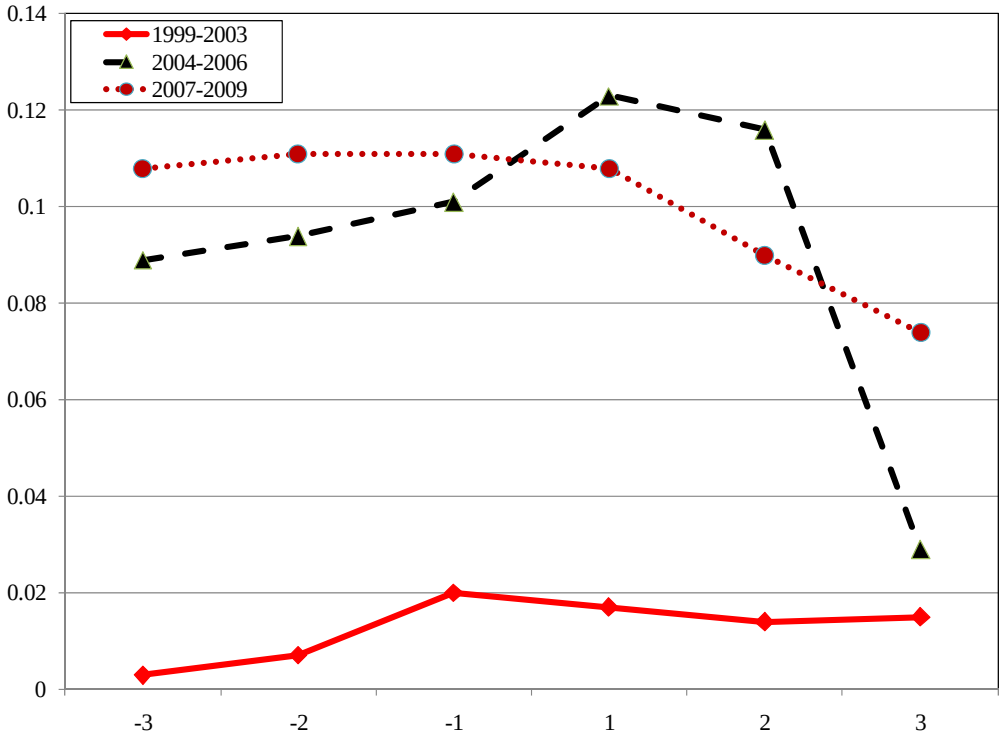

Figure 9(b). Elevated Defaults Around CRA Exams – Time Series Evolution

This figure plots the dynamics of elevated delinquencies in CRA-eligible and non-CRA-eligible tracts. We plot coefficients on pre- and post-exam dummies interacted with three period dummies (1999–2003, 2004–2006, 2007–2009) on the Y axis, and the quarters around the CRA exam date are on the X axis. Data span 1999–2009.

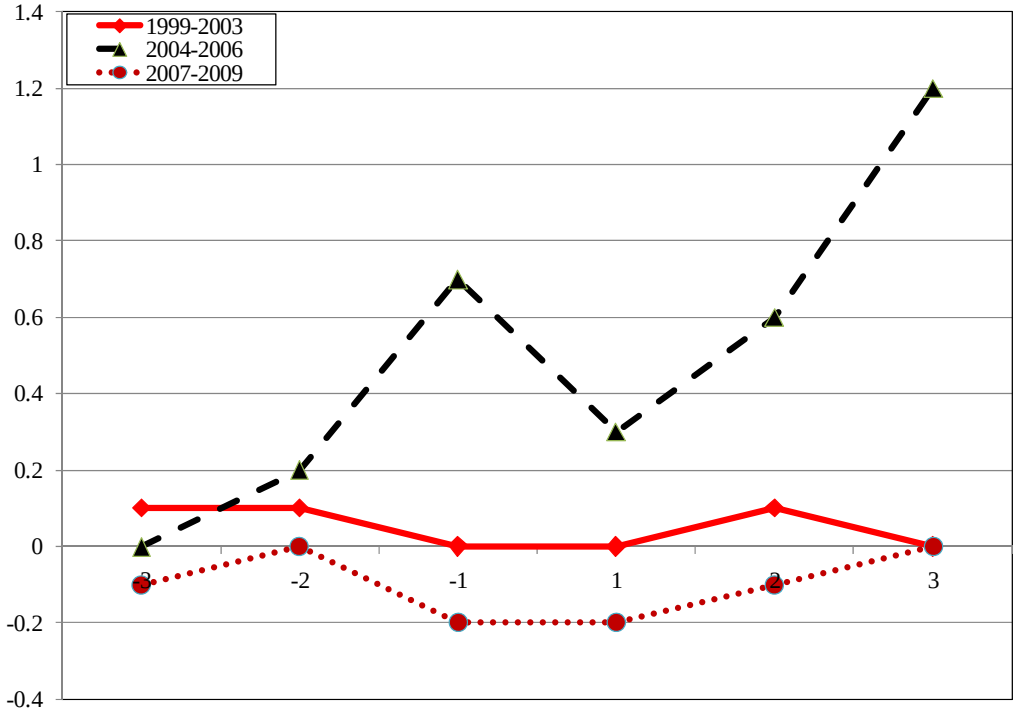

Figure 10. Elevated Defaults Around CRA Exams – Large Banks

This figure plots the dynamics of elevated delinquencies in CRA-eligible and non-CRA-eligible tracts for lending by large banks. This complements the analysis on elevated lending in column 3 of table 4. Coefficients on the pre- and post-exam dummies and on the interaction of these dummies with $CRAtract_c$ are on the Y axis, and the quarters around the CRA exam are on the X axis. The delinquency is 90 days tracked two years from a loan's origination. Data span 1999–2009.