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CRA Grade Inflation

by
Kenneth H. Thomas, Ph.D.
Lecturer in Finance
The Wharton School
Philadelphia, PA
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INTRODUCTION

The Community Reinvestment Act of 1977 (CRA), introduced by Senator William Proxmire of Wisconsin and signed into law by President Jimmy Carter, arguably has been the most controversial statute in the commercial bank and thrift industries.

The four federal bank and thrift regulators are in the middle of the CRA controversy between consumer groups and banks. Activists complain that regulators are too lenient on banks in their CRA ratings and enforcement, but bankers retort that the excessive regulatory burden is preventing them from efficiently doing their lending job.

At the heart of this debate is the allegation that many if not most CRA ratings are "inflated" by friendly regulators. This "Friendly Regulator Hypothesis" is rooted in the argument that bank regulators are more interested in appeasing and becoming friendly with banks by inflating ratings than objectively evaluating and rating them. Such behavior, it is argued, makes the regulators' examination job much easier and less stressful. Examinations resulting in low CRA ratings are often confrontational, especially at the face—to—face exit interview with management. Low ratings are most likely to result in unwanted scrutiny from superiors at the regional (and sometimes even Washington, D.C.) office, who may receive complaints and even formal appeals from upset bankers. There is little upside to being an objective CRA examiner under this hypothesis, but the opposite is true for a friendly examiner.

The fact that more than 98% of banks and thrifts currently receive a passing "Satisfactory" (S) or "Outstanding" (O) rating is evidence that regulators "inflate" CRA ratings claim the activists. Yet, bankers respond that the very low (under 2%) proportion of below average "Needs to Improve" (NI) or "Substantial Noncompliance" ("SN") ratings prove that bankers do a good job of meeting community credit needs.

Such allegations of CRA grade inflation have been around since the first CRA exams, but there has been no research on this topic other than casual referencing of very high passing (S and O) and very low below—average (NI and SN) rating percentages. This paper fills this research void by formally defining grade inflation (and deflation); developing a methodology for measuring it; and, applying this methodology to 1,407 small banks and thrifts on a case—by—case basis. These financial institutions were evaluated under the 1995 "revised" examination procedures that went into effect in 1996. This research represents the most comprehensive analysis of publicly disclosed bank and thrift exams ever conducted. Three different regression models using these data were developed and tested.

The findings of this analysis document widespread grade inflation, with nearly half of all banks and thrifts having unduly high ratings not justified by their actual CRA performance. This research

supports the Friendly Regulator Hypothesis, with certain regulators (and their regions) being more "friendly" than others. A separate methodology applied to a much smaller sample of large retail banks (31) and special purpose banks (31) likewise found rampant CRA grade inflation.

These findings should be of great interest to policy makers desirous of improving the quality and consistency of CRA examinations and ratings across regulators and their component regions. In addition to supporting the recommendation for a single regulator in this regard, these findings also suggest a revisiting of the proposal to disclose safety and soundness ratings.

Bankers should likewise be interested in these findings, as they can attempt to predict their ratings based on their performance. Even though the a priori probability of a below—average rating is less than 2%, the cost of such a relatively infrequent occurrence goes well beyond the adverse public relations impact. It effectively shuts down any office, merger, or other corporate expansion plans. More recently under the Gramm—Leach—Bliley (GLB) financial modernization bill, a banking subsidiary of a financial holding company with a failing rating "would be prohibited from commencing any new financial activities."

The paper is organized as follows. The next section provides relevant background on CRA and the grade inflation controversy. Section III details the recommended CRA grade inflation methodology. Section IV describes how this methodology is applied for the individual tests comprising a CRA exam, with specific grade inflation examples being provided. The evaluation of overall rating inflation is approached first from the perspective of published regulatory guidelines (Section V) and then by aggregating individual test ratings (Section VI). The implications of the rampant grade inflation uncovered in this analysis are discussed in Section VII. Section VIII describes the regression analysis conducted here, with detailed information on the three alternative models that were developed to evaluate grade inflation. Section IX summarizes the conclusions of this analysis.

BACKGROUND ON CRA AND GRADE INFLATION

CRA Controversy

Controversy over CRA, which dates back to 1977, continues today to the point where it threatened to derail the GLB financial modernization bill in 1999 and is the subject of debate on any related legislation (e.g., predatory lending).

CRA is a relatively short law with a simple mandate of requiring the four federal financial institution regulatory agencies to encourage covered banks and thrifts ("banks") to help meet the credit needs of their entire community, including low— and moderate—income (LMI) areas, in a manner consistent with safe and sound banking practices. The law is primarily enforced when banks seek to expand corporate operations, with a possible denial or delay being the price for a poor CRA rating.

Different groups view CRA from opposite perspectives. An extreme community activist's view might blame the dilapidated condition of our inner cities on bank disinvestment and "redlining," the alleged practice of geographical discrimination. Because of obvious market failures, government not only has the responsibility to regulate banks from this perspective but also the right, with CRA viewed as the *quid pro quo* for various federal bank subsidies such as federal deposit insurance.

The opposite view held by bankers is not one of *failed* markets but *efficient* markets, where CRA is an unnecessary and unwarranted government intrusion in private markets. Bordering on credit allocation, CRA from this viewpoint represents an excessive regulatory burden, an implicit tax, which raises the cost of credit to consumers.

There is an extensive literature on CRA (see Haag, 2000 and U.S. Department of the Treasury, 2000), but only a handful of studies dealing with CRA ratings (see, for example, Dahl, Evanoff and Spivey, 1999 and Immergluck, 1997). Several government agencies have examined various inconsistency and other problems associated with CRA exams and ratings (see U.S General Accounting Office, 1995 and OIG Office of Inspector General, U.S. Department of the Treasury, 1998), but they do not, perhaps for political reasons, broach the highly controversial issue of

grade inflation. There have been only a few studies discussing this important topic (see U.S. Congress, 1992 and Thomas, 1993 and 1998).

Early Allegations of CRA Grade Inflation

The first allegations of CRA grade inflation came from community activists and politicians, who were disenchanted with the apparent failure of the 1977 law to impact targeted communities. Senator Proxmire, the "father of CRA," expressed this discontent best in 1988 Congressional hearings:

"Redlining hasn't disappeared. Neighborhoods are still starving for credit. Too many bankers still think the grass is greener elsewhere…. Regulators seem to think that we're all living in Lake Woebegone. Like the children of the fictional village, U.S. lenders are all above average. Almost all get high ratings year after year and almost none is ever held back…. And I ask myself, how is it that so many neighborhoods are continuing to fail while so many lending institutions are continuing to pass?"

The earliest references to grade inflation cited the relatively high proportion of passing and very low proportion of failing ratings using aggregate industry data. Prior to 1990, the only CRA ratings data that were available were aggregate information, typically cross—tabulated by regulator and bank size. The fact that below—average (NI or SN) ratings were in the 1.6—2.6% range over the 1982—87 period was cited as evidence of grade inflation. This approach, which assumes some implicit ideal grade distribution, is obviously problematic because of the aforementioned difference in data interpretation by community activists vs. bankers.

The likelihood (in 1988) and reality (1989) of publicly disclosed ratings and a portion of the actual CRA exam was associated with a significant increase in below—average ratings to 3.8% in 1988, 10.3% in 1989 and over 11% in 1990 and 1991. These trends were cited as further evidence of *previous* grade inflation.

This approach to quantifying grade inflation by examining the *change* in the aggregate ratings distributions over time is based on the assumption that any significant increase in failing ratings (or decrease in passing ratings) is evidence of previous grade inflation. Likewise, any significant increase in passing (and especially O) ratings is suggestive of current grade inflation, as is any reduction in the comparable percentage of failing ratings. In addition to the interpretation problems noted above, these findings are also limited as they are based on aggregate industry data rather than that for individual banks.

Early Research On CRA Grade Inflation

One of the few bright spots of the 1989 Financial Institutions Reform, Recovery and Enforcement Act (FIRREA) law bailing out the S&L bailout industry was an unprecedented provision requiring new CRA public disclosures. Beginning July 1, 1990, not only would the CRA ratings of individual banks be made public, but there would also be a "performance evaluation" (PE) describing the actual results of the CRA exam. The PE described and evaluated a bank's performance relative to 12 "assessment factors."

This was the first time in our nation's history that any bank rating or examination finding was made public, and it obviously met with considerable industry opposition. This new data disclosure also allowed the public to have its first look at the bank exam and rating process, which had been always been confidential.

More importantly, it enabled CRA researchers the first opportunity to attempt to determine whether or not grade inflation existed on a case—by—case basis rather than making generalized assumptions by citing above— or below—average aggregate rating percentages. Thus, an entire new grade inflation methodology was borne as the rating of a given bank could be compared to its actual performance to determine if there was grade inflation, deflation or (hopefully) neither.

The author filed a series of Freedom of Information Act (FOIA) requests in 1990 and 1991 with the four federal financial institution regulators in which *every*

publicly available PE was requested. These multiple requests were followed up with several personal visits to their Washington, D.C. offices where hundreds and ultimately thousands of PEs were gathered, reviewed, and analyzed.

On March 26, 1991, the author released a study of 1,659 CRA ratings made through February and March 1991 showing 8.0% of banks with above—average O ratings and 11.3% with below—average NI or SN ratings (Thomas, 1993). Of the 6,706 CRA ratings made from July 1, 1990 to December 31, 1991, there were 8.7% above—average and 11.0% below average ratings; 142 or 2% of all public ratings by then were multiple ones of the same bank.

Regulatory sentiment toward CRA is often determined by carefully evaluating the above— and below—average ratings and PEs, rather than the large bulk of average ones. In order to determine the extent of grade inflation, a painstakingly detailed assessment factor-by-assessment factor content analysis was made of a stratified sample of 250 of the best (O rated) and worst (NI and SN rated) PEs made public between July 1, 1990 and December 31, 1991; this sample represented nearly 20% of all such PEs made public during this period (Thomas, 1993).

Although community groups and others long questioned the validity of CRA ratings, this was the first attempt to document grade inflation based on individual rather than aggregate ratings data. Each of the 250 PEs were carefully reviewed to determine any unjustified overall ratings relative to actual CRA performance.

Typical of inflated O ratings were the cases of a small Texas bank with an 11% loan—to—deposit ratio (compared to a 65% peer ratio); a large Maine bank criticized for a relatively low level of LMI lending; and, a large Chicago bank with a substantive noncompliance violation of the Equal Credit Opportunity Act (ECOA). Typical of an inflated NI rating was the case of a mid—sized California bank with a "very low" level of home lending, especially in LMI areas, because of policies that have an indirect effect of "discouraging applications;" that bank, the target of past enforcement actions, was upgraded from a previous SN rating.

The 1991 *nominal* or reported distribution for O, S, NI, and SN ratings was 9%, 80%, 10%, and 1%, respectively. Based on the above—cited analysis and an assumption of grade inflation in the S category similar to that in the NI one, it was concluded that the *real* or inflation-adjusted ratings distribution for 1991 was 5%, 70%, 23%, and 2% (Thomas, 1993). Using this same methodology, the comparable nominal ratings distribution for 1992 of 10%, 79%, 10%, and 1% was adjusted to a real distribution of 6%, 72%, 20%, and 2%. These grade inflation findings were significant as the proportion of below-average ratings doubled and the proportion of above-average ones was approximately halved.

The author shared these and other grade inflation findings in 1991 and 1992 with the staff of the Housing Subcommittee of the Senate Banking Committee in 1992 upon being contacted by them. They were conducting their own investigation of approximately 284 PEs at the time. Rather than select the sample themselves, they relied on the four regulators to provide 50—70 PEs each. The staff focused on S and O ratings, the majority of which were in 1991 and 1992, and provided detailed excerpts and commentary on at least two PEs from each regulator for each of the 12 assessment factors.

The Senate staff made no attempt to quantify the extent of grade inflation or provide any statistics or estimates in this respect. Rather, the focus was on providing anecdotal evidence gleaned from the PEs reviews, but that was enough for them: "These evaluations are, with notable exceptions, their own indictments" (U.S. Congress, 1992). That report offered numerous examples of inappropriate CRA credit given to banks for such activities as having directors who did nothing but own area businesses and bank officers who offered a $60,000 line of credit for Girl Scout cookies. The November 1992 study determined that there was an "unwillingness on the part of all the regulators to give a less than satisfactory rating" and concluded that:

"Grade inflation undermines the credibility of the financial institutions and the regulators as well as the integrity of the process. Grades that accurately reflect the performance of the financial institution are essential, particularly when these evaluations are scrutinized by the public. Inflated

grades also deprive banks of realistic and accurate guidance." (U.S. Congress, 1992).

New CRA

Community activists and others had numerous complaints about CRA besides grade inflation, such as the lack of enforcement of the law for the small percentage of banks with failing ratings. Bankers, on the other hand, complained about a costly and excessive regulatory burden, among other things. Both sides, as well as the regulators and even Congress, agreed that CRA exams and ratings were quite subjective. Everyone felt that it was time for a change. President Clinton called for CRA reform in July 1993, and some two years later, in April 1995, a "new" CRA was announced.

The revised CRA had separate exam procedures for small banks (under $250 million in assets and not associated with a bank holding company of $1 billion or more); large retail banks; and, wholesale (e.g., foreign) and limited purpose (e.g., credit card) banks. Rather than using the same set of 12 subjective assessment factors for all banks as under the "old" law, the revised CRA contained specific performance measures.

The small bank exam became mandatory for exams starting January 1, 1996. This exam, which is relevant for the largest number of banks, was the most quantitative, with four specific tests, each of which would be rated as meeting, not meeting, or exceeding standards of satisfactory performance:

1. Loan to deposit (LTD) ratio
2. Lending in assessment area
3. Lending to borrowers of different incomes and to businesses/farms of different sizes
4. Geographic distribution of loans

The large retail bank exam procedures were much more comprehensive with a separate lending test weighted twice the value of individual investment and service tests. Immergluck (1998) reviewed the ratings of 103 large retail banks examined during the January 1, 1996—June 30, 1997 period under the new regime and found that the bulk of institutions were receiving the same ratings as they had previously (under the "old" CRA) with few downgradings. The higher scores on the lending test relative to the other two tests raised concern that examiners may be "taking it easy" on that critical test. Although the Immergluck (1998) research did not specifically address grade inflation, it concluded that the 98% of banks with overall passing CRA ratings "appears extremely high given the continuing barriers to credit and capital faced by low— and moderate—income communities."

The only detailed grade inflation analysis of large retail banks under the new CRA was based on a sample of 31 banks examined in 1996 (Thomas, 1998). Using data in the PEs, as well as other publicly available data, the ratings on each of the three tests were effectively redone. The nominal distribution of O, S, NI, and SN ratings of 16%, 71%, 10%, 3%, respectively, was transformed into a real distribution of 0%, 48%, 42%, and 10%. The comparable analysis by this same source of a sample of 31 wholesale and limited purpose banks resulted in the nominal ratings distribution of 6%, 94%, 0%, and 0% being almost inverted into a real distribution of 0%, 46%, 35%, and 19%, respectively.

"NEW CRA" GRADE INFLATION METHODOLOGY

Old vs. New CRA Grade Inflation Methodology

This research improves upon and expands the above—referenced (Thomas, 1993) "old" CRA inflation methodology in a number of ways:

1. The present study reviews all new CRA exams rather than just a 20% sample of the best and worst ones; the result is a sample of all 1,407 small bank exam results made public during the first nine months of 1996 compared to a stratified sample of 250 exams.

2. This investigation evaluates the large majority of S-rated banks, rather than focusing on the

above- and below-average ones (and making an assumption about grade inflation in S-rated banks).

3. The new CRA inflation methodology is based on the results of three independent layers of review (i.e., a "judge-rejudge" reliability procedure) rather than just one. Also, the present approach defines *three* rather than *one* type of grade inflation.

4. This inquiry is based on a much more structured and quantitatively oriented new CRA exam conducive to statistical analysis, in contrast to the unstructured and qualitatively oriented old CRA exams.

5. All of the banks analyzed under these new techniques and methodologies are homogenous small banks rather than an amalgamation of small, large and special-purpose banks.

Process for Evaluating CRA Grade Inflation

Grade inflation is evaluated for the four component tests of the small bank exam, and these results are aggregated to determine the overall rating. The comparison of the actual data (e.g., LTD ratio) to the appropriate benchmark (e.g., peer LTD ratio) for each of the individual tests is the most common basis for whether or not the standards for satisfactory performance are met, not met, or exceeded. While the focus is on the above-mentioned ratios, other statistics and information are used when available in accordance with the regulatory performance criteria and exam procedures.

The four tests for each exam are effectively redone, in many cases supplemented with additional demographic, banking or other data not available in the PEs. Each exam required several hours of analysis, and some of the more complicated ones with multiple assessment areas (AAs) and/or loan surveys demanded even more time, including calls to numerous examined banks for even further information.

The result is an objective and documented "true" or "real" rating (exceeds, meets, or does not meet standards) for each of the four tests on a bank-by-bank basis. The true rating may or may not have agreed with the examiner's actual or nominal assessment using those same three rating categories for each of the four tests. A comparison of the four real ratings to the examiner's reported test rating in the Performance Level Ratings Matrix of each bank is made to determine whether or not there is inflation (or deflation) in each individual test rating.

A similar process is undertaken for the overall rating. This requires an implicit weighting scheme for the individual tests and consideration of other relevant factors noted in the exam procedures such as optional investment and service test findings, fair lending results, complaint resolution, and, performance context (PC) factors. The PC factors, such as a bank's competition, financial condition, economic environment, business plan, etc., play an important but obviously subjective role in providing the proper perspective for the rating analysis. The resultant overall real rating is then compared to the nominal rating reported by the examiners to determine whether or not there is *overall* CRA grade inflation (or deflation). This process was repeated for each of the 1,407 banks in this analysis.

Defining CRA Grade Inflation

There are three types of CRA grade inflation defined in this project:

1. *Likely Inflation* - There is a strong likelihood that the rating is inflated, but more information than that provided or readily available is required for a final determination.

2. *Inflation* - Substantial documentation exists that the rating is inflated by one category

3. *Gross Inflation* - Substantial documentation exists that the rating is inflated by two (or three) categories

Many evaluations using the above methodology found no inflation whatsoever. Inflation may have been found in one or more of the four tests but not in the overall rating. Deflation is the opposite

of inflation. There are a few cases of one-

level overall rating *deflation* and even two-level *gross deflation* in the case of individual tests; the second test had the greatest incidence of deflation.

"Judge-Rejudge" Reliability Procedure

The author trained a group of research analysts to provide inflation evaluations for each PE using the above methodology. The "judge-rejudge" reliability procedure utilized in this project is based on three independent levels of evaluation using at least three different analysts:

1. The primary analyst reads each PE and records the previous CRA rating and date obtained from the regulators (or directly from the banks). That analyst also notes key highlights from the text of each exam, along with the actual ratios and benchmarks, on the ratings matrix page of each PE. Many ratios are "buried" in the PE and others require numerous calculations, including weightings by loan types for sample results, to maintain data consistency. The determination of appropriate benchmarks is the most time-consuming part of this function, as it usually requires searching outside data bases. The initial analyst is also responsible for making the first inflation evaluation for each of the four tests and the overall rating. A few different analysts are used at this stage. The completed PE is then given to the senior analyst.

2. A senior analyst, the same in all cases, then reads each PE and independently reviews all data calculations and benchmark recordings. This process often requires additional outside benchmark or other data. The senior analyst then makes separate test and overall inflation ratings, which override the previous ones if there are any differences of opinion (which would be discussed with the primary analysts). The revised PE is then given to the author.

3. The author then reads each PE and completes an independent review of all data calculations and benchmark recordings. The third and final individual test and overall inflation evaluations are then made, and these override the previous ones if there are any differences of opinion (which would be discussed with the senior analyst). The shortest PEs can be evaluated within an hour or so, but hundreds of longer and more complicated ones required several hours, especially when outside data and calls were necessary for a complete job.

The above process is repeated 1,407 times, once for each of the small bank PEs in the project. The use of such a multiple (back-to-back-to-back) reliability rating system ensures consistency in inflation ratings to the greatest extent possible.

INDIVIDUAL PERFORMANCE TEST INFLATION RESULTS

Summary of Four Tests, Performance Standards, and Benchmark Ratios

1. Test #1 — Loan—to—Deposit (LTD) Ratio
   The standard for satisfactory performance in this test is whether a bank's average LTD ratio over the exam review period is reasonable given the bank's size, financial condition, and AA credit needs. The relevant benchmark is the median LTD ratio of a relevant peer group. A 60% LTD may exceed standards for satisfactory performance for a small bank in Texas but not meet such standards in the case of a thrift in California.
2. Test #2 — Assessment Area (AA) Concentration Ratio
   This ratio is defined as the percentage of all bank loans (number rather than dollar amount) in the AA. For purposes of this analysis, a bank meets the standard for satisfactory performance at 50% and exceeds them at 85%. This is the most objective of the four tests.
3. Test #3
   The standard for satisfactory performance is that a bank's distribution of borrowers reflects a reasonable penetration among individuals of different income levels (including LMI) and businesses and farms of different sizes. There are two ratios depending upon the type of loans at a bank; an examiner at a bank with both retail and business/farm loans should use both ratios.

a. AA LMI Borrower Ratio
   This ratio, used for any bank with residential mortgage, consumer, or related retail loans, is defined as the percentage of all such loans (by number) in the AA to LMI borrowers. The relevant benchmark is the percentage of LMI families in the AA.
b. AA Small (or Very Small) Business and/or Farm Lending Ratio
   This ratio, used for any bank with business and/or farm loans, is defined as the percentage of all business and/or farm loans (by number) to "small" entities with $1 million or less gross annual revenues or "very small" entities at $100,000 or less. The relevant benchmark is the percentage of businesses/farms in the AA with revenues below these thresholds.

4. Test #4 — AA LMI Geography Ratio
   This ratio is defined as the percentage of all bank loans (by number) in the AA in LMI geographies, namely U.S Census Bureau defined Census Tracts (CTs) or Block Numbering Areas(BNAs). A bank with a geographic distribution of loans which reflects a reasonable dispersion throughout the AA meets the standard for satisfactory performance. The relevant benchmark is the percentage of LMI geographies in the AA.

Inflation in Test #1 Ratings

The most prevalent type of Test #1 inflation involves erroneous statements comparing a bank's average LTD ratio with that of its respective peer group. Sometimes an inappropriate (but more readily accessible) statewide peer ratio is used when LTD ratios are available for similarly situated local peers. The primary source of such information for banks with a 1994-96 review period is the December 31, 1995 balance sheet data as reported in the Spring 1996 *Polk North American Financial Institution Directory* . Other editions were used as necessary as well as additional sources of financial data such as the FDIC.

According to the OCC's guidelines, "In order for the [LTD] ratio to 'exceed the standards' for satisfactory performance it should be at the high end of the range of [LTD] ratios being used for comparison" (Thomas, 1998). Also, other mitigating factors that are considered in the evaluation of possible inflation in this and other tests include "other lending activities" and relevant PC factors.

Much of the Test #1 inflationary behavior involves statements about relative LTDs that are easily disproved:

1. Examiners at a bank in Georgia rated their average LTD ratio of 75% (or 68% as of year-end 1995) as "more than reasonable" and exceeding standards; however, they totally ignored that bank's similarly sized competitor (the only other depository institution in town) with a year-end 1995 LTD ratio of 81%. Thus, this is an inflated Test #1 rating as the bank only meets that test's standards.

2. Even more inflated is the PE of a Texas bank which was rated as meeting standards in Test #1 but failed to even report an LTD ratio for the rated bank other than opine that it is "reasonable and comparable to area banks of similar size...and primary competitors." According to the *Polk* directory, that bank's year-end 1995 LTD ratio was only 38% compared to ratios of 56%, 58%, and 76% at its three local competitors.

3. Examiners at a bank in Ohio determined that its average 50% LTD ratio met standards as it is "reasonable" in terms of the ratios of "similarly situated and competitor banks." That bank's year-end 1995 LTD ratio of 50% is well below the comparable 65% ratio for a similarly-sized local bank and the 83% and 85% ratios of two similarly-sized local thrifts. The Test #1 rating, therefore, is inflated.

Fully 36.8% of all Test #1 ratings are inflated, and this consists of 10.9% that are likely inflated, 25.4% inflated, and just 0.5% being grossly inflated. The FED led all regulators with a 43.9% combined Test #1 inflation rate, with the greatest single offender in terms of number of banks being the Minneapolis FED. In fact, examiners at that FED are the greatest source of LTD ratio inflation on a relative basis for all major regions of all regulators. (Major regions in this analysis are defined as those with at least 17 exams, and this includes all regions at all regulators but for

seven FED districts with under ten exams each.)

The FDIC (39.8%), and especially its Chicago region, as well as the OCC (39.0%), and especially its Midwestern district, follow second. The OTS has the least Test #1 inflation (19.4%), although the 51.2% ratio at its Southeast region is the highest for that regulator.

Inflation in Test #2 Ratings

The application of the previously stated 50% and 85% absolute standards is straightforward in ascertaining cases of inflation and deflation. Only 7.4% of all Test # 2 ratings are inflated, with all but nine (0.6%) of them being standard one-level inflation. The nine exceptions, all cases of likely inflation, represent borderline cases with data availability problems or where other PC factors, including the dollar volume of loans, are also considered.

The 7.2% to 8.3% inflation rates at the OCC, FED, and FDIC are virtually identical, with the historically tough-grading OTS guilty of just 4.3% Test #2 inflation; the OTS is more known for deflation in Test #2. Counting all major districts, only the Boston region of the FDIC stands out with a 21.1% inflation rate for this test.

Inflation in Test #3 Ratings

The assessment of Test #3 inflation is the most difficult, as several PC and other factors are considered beyond the standard LMI borrower and small (and very small) business/farm borrower ratios. Banks with very small (e.g., 5% or less) LMI borrower ratios may meet standards depending upon the relevant benchmarks, the relevant PC, and other factors. Sometimes loan size proxies are the only data presented for retail and commercial/farm loans. Many PEs have no benchmarks, and these are determined as part of this analysis. These and other data availability problems tend to increase the frequency of likely inflation.

The following are examples of Test #3 inflation:

1. Examiners at a North Dakota bank rated it as exceeding satisfactory performance standards. Its LMI borrower ratio of 17% was half the 33% benchmark, and its 31% small farm lending ratio was less than half the 65% benchmark. This was a grossly inflated Test #3 rating.
2. A bank in California with an 8% LMI borrower ratio was rated as meeting standards when the benchmark was 29%; this was an example of one—level inflation.
3. A Minnesota bank met standards according to examiners because it had a very high 88% LMI borrower ratio. The consumer loan sample selected by the examiners, however, only had 24 loans over a three—year period, and the examiners only reviewed the eight loans in that sample which were below $1,000 in size, thus biasing the results toward LMI borrowers. Also, consumer loans, the only type analyzed, represented just 18% of that bank's loan portfolio. The analysis determined that this rating was inflated.

Over half (52.0%) of all Test #3 ratings are inflated, thus making it the single most inflated test in the new CRA. Of this total, 10.4% was likely inflated, 37.7% one-level inflated, and 4.0% two-level (grossly) inflated.

The OTS and FED led the other agencies at the same approximate 58% inflation rate. The very high rate (58.1%) of likely inflation at the Richmond FED is primarily due to an elevated level of biased loan sampling techniques. As a result that FED district leads all major regions of all regulators with a huge 80.6% inflation rate. Top Test #3 inflators besides the Richmond FED are the FDIC's Boston region (73.7%) and the OTS' Midwest (71.2%) and Southeast (70.7%) regions.

Inflation in Test #4 Ratings

The evaluation of possible inflation for this test focuses on the key LMI geography ratio. An alternative and sometimes supplemental measure utilized by some examiners is the total AA or LMI penetration ratios, which gauge the proportion of all AA (or LMI) geographies with at least one loan from a bank. In the large number of exams where there is no Test #4 LMI or other analysis

but a rating, it is presumed that such banks meet standards in accordance with the OCC's "satisfactory until proven otherwise" examination philosophy (Thomas, 1998).

As above, very small (e.g., 5% or less) LMI geography ratios may meet standards, depending upon the appropriate benchmark (adjusted for zero-income geographies) as well as PC and other factors. Most Test #4 inflation, however, is quite obvious as in the following cases:

1. Two banks, both primarily real estate lenders, with 0% LMI geography ratios (i.e., absolutely no loans in LMI areas) were considered to exceed standards for satisfactory performance. These banks in Missouri and Minnesota, with respective benchmarks of 11% and 14%, had grossly inflated Test #4 ratings.
2. Another bank (in Maryland) with a 0% LMI geography ratio compared to a 6% benchmark was considered to meet standards. The examiner accepted the bank's argument that the LMI geographies were somehow unimportant, as they represented only 4 of the AA's 63 census tracts with "only 5%" of the AA's population. This test is inflated as the 5% meant 35,000 people in this AA, and there was no evidence that the bank made any attempt to penetrate that portion of the market.
3. Examiners at two banks in South Dakota did not even bother to do an analysis under this test as there were "no LMI geographies" in the BNAs within their AAs. A more detailed micro—analysis of component cities within those BNAs, however, revealed that both banks had identical LMI geography ratios of 1% compared to 10—11% benchmarks. Had the examiners performed this analysis they most likely would not have rated these banks as exceeding and meeting satisfactory performance standards, examples of gross and one—level inflation, respectively.

The total Test #4 inflation rate of 36.0% is on par with that for Test #1. Most of the Test #4 inflation is the standard one-level type, with 4.2% likely and 2.1% being two-level inflation. Like Test #1, the FED tops all other regulators with a 49.7% inflation rate, its Richmond bank being the worst in this category for all major districts. The OTS is uncharacteristically second (41.8%) in overall inflation under this test, with its West region reporting a substantial 76.5% inflation rate.

EVALUATING OVERALL RATING INFLATION BASED ON REGULATORY GUIDELINES

Two Alternative Methods of Measuring Overall Grade Inflation

This section and the next provide two alternative approaches to measuring overall grade inflation. The following section represents the recommended approach, as it is based on an aggregation of the inflation results of the four individual tests described in the previous section.

Because there is no individual test weighting or other overall rating scheme in the small bank exam (unlike that for the large retail one), it is more difficult to assess the extent of overall rating inflation. Also, the analysis is complicated by the supplemental investment and service tests, which allow for enhancing otherwise S ratings to O ones.

Outstanding Rating Regulatory Guidelines

It is possible, however, to evaluate some of the inflation inherent in overall CRA ratings simply by comparing stated performance test rating patterns to regulatory guidelines for certain ratings. The most specific guidelines are available for O ratings, partly because regulators generally presume an S rating unless proven otherwise. Also, because the O rating is the highest possible one, a detailed inflation analysis of it is one of the best barometers of regulatory sentiment towards CRA (another key gauge is the percentage of below-average ratings).

The OCC's guidelines (Thomas, 1998) establish the following rules for an O rating:

1. A bank must meet each of the performance criteria standards and exceed some or all of them.

2. None of the performance criteria should be described as "does not meet;"

3. (a) Test performance criteria that exceed standards must "materially" exceed them (if there

are no supplemental service and investment tests) or

   (b) Test performance can just exceed (and not materially exceed) standards, as long as the bank performs sufficiently on the supplemental tests; and,

4. "Remember, the two criteria that are the most important in determining the institution's overall rating are [Tests #3 and 4]. However, the lack of lending may be mitigated by information in the performance context."

These guidelines, of course, assume that there is no inflation in any of the individual tests, an obviously unrealistic assumption based on the analysis in the previous section. Assuming that the actual or nominal ratings stated in the PEs are the true or real ones (i.e., there is no inflation), there are countless examples of outright violations of these guidelines by examiners at all four agencies.

Examples of Examiners' Violation of Outstanding Rating Regulatory Guidelines

The following are very specific outstanding rating guidelines contained within the October 21, 1996 Question and Answer (Q&A) guidelines provided by the federal bank regulators (Thomas, 1998): "An institution with a high [LTD] ratio and a high percentage of loans in its [AA(s)], but with only a reasonable penetration of borrowers at all income levels or a reasonable dispersion of loans throughout geographies of differing income levels in its [AA(s)], generally will not be rated 'outstanding' based only on its lending performance."

This means that an exam exceeding ("+1") standards for the first two tests and meeting ("O") standards for the latter two generally are rated S, although investment and service performance can enhance the overall rating. A literal interpretation of these Q&A guidelines requires that all four tests exceed standards for an O rating (unless the supplemental tests are helpful). This is one reason why the lack of a formal rating scheme is a problem.

There are 25 O-rated banks (7% of all O-rated banks) in this sample with that precise rating matrix pattern for Tests #1, 2, 3, and 4, namely performance ratings of +1, +1, 0, and 0, respectively, with all regulators proportionately represented. The problem, though, is that all of those banks have O ratings instead of the S ones generally called for in the above Q&A.

The result is standard, one-level, overall grade inflation, a situation that would be even worse, if the several cases of Tests #3 and 4 inflation in those banks were exposed. The only exception to overall inflated ratings at those 25 banks is if there was no individual test inflation and the supplemental investment and service tests (which was performed at some of these banks) legitimately enhanced otherwise overall S ratings.

Categorization of 368 Outstanding-Rated Banks by Test Ratings Profile

There are 368 CRA exams with O ratings in this analysis (including the aforementioned 25). The following breakdown of these 368 exams by their Tests #3 and 4 rating patterns discloses additional cases of overall grade inflation based on the above-cited Q&A guidelines:

Category #	# of O-Rated Exams	Test #3 Rating	Test #4 Rating	Comment
1	17	+1	N/A (No LMI)	
2	4	+1	N/A	Two have 100% LMI geographies
3	62	+1	+1	Test #1 (+1) and Test #2 (+1)
4	71	+1	+1	Tests #1 and 2 (0 or +1)
5	28	0	0	Includes 25 noted exams
6	54	0	+1	
7	132	+1	0	
Total	368			

Additional Examples of Inflation in Overall Outstanding Ratings

The O ratings in Category 5 include the above—mentioned 25 exams plus three others which exceed Test #1 standards but only meet Test #2 ones. There are two more O-rated banks (in Category 6) which exceed Test #4 standards but only meet those for Tests #1, 2, and 3. Thus, these five exams are rated O with only *one* of four tests exceeding standards, an even worse guideline violation than the 25 banks cited above.

The 21 banks represented by the first two categories above may be inflated, if the banks' underlying LMI geography performance does not or just barely meets standards. Their performance is not reported due either to the "no LMI" or "not meaningful" excuses. The four banks in the Category 2 don't even have a rating on Test #4, yet they were granted O ratings by the FDIC (one case) and OCC (three cases).

Categories 6 and 7, making up just over half of all O ratings, have either reasonable (i.e., meets standards) Test #3 or Test #4 performance coupled with average or above-average Tests #1 and 2 performance. A literal interpretation of the Q&A guidelines throws doubt on the O ratings for these banks, unless their supplemental investment and service performance outweighed those shortcomings. Then again, the OCC guidelines remind examiners that Tests #3 and 4 "are the most important" for the overall rating.

If the benchmark for an O rating is for both Tests #3 and 4 to exceed standards, allowing for Test #1 and 2 to meet or exceed standards, then the 36% of O ratings in Categories 3 and 4 qualify. If the tougher Q&A standard of an above-average rating on all four tests is in effect, only the 17% of ratings in Category 3 would be eligible for the highest rating. Regardless of the interpretation of the regulatory guidelines, it is evident that a considerable portion (as much as 83%) of the 368 reported O ratings are inflated based on the above interpretation of the examiners' own performance test ratings. Because of the previously documented individual test inflation in the Category 3 exams, these steep inflation rates may be even higher.

EVALUATING OVERALL RATING INFLATION BASED ON THE ANALYSIS OF INDIVIDUAL TEST INFLATION

Recommended Methodology for Evaluating Overall Rating Inflation

This section describes the recommended approach to gauging overall rating inflation. This process starts with an evaluation of inflation in component tests (Section IV) and then aggregates the results with an implicit test—weighting scheme to ascertain the extent of overall grade inflation.

Rather than apply, for example, the relatively strict Q&A guidelines for an O rating where at least Tests #3 and 4 must exceed standards, all tests are considered relative to each other. There is a primary emphasis on Tests #1 and 3, with Test #4 a short distance behind in relative importance; Test #2 is relatively least important, a considerable distance behind the others.

Each of the 1,407 exams is evaluated separately to result in an overall rating, rather than using a mechanistic equation or model to spit out overall ratings based on individual test results. In addition to considering any supplemental investment and service test performance, the overall ratings determined in this study take into account other relevant regulatory factors such as complaints, fair lending violations, improvements since the last exam, and PC factors. Each exam is effectively redone as if the analyst is within the bank completing an independent evaluation, except there is no possibility of any friendly (or unfriendly) personal elements clouding objectivity.

The examiners' stated rating in each PE is presumed to be accurate, unless the cumulative effect of inflation on individual tests (especially Tests #1 and 3) clearly offset the overall rating. It is possible to have inflation in one or more tests but not in the overall rating. Also, there is always some uncertainty in assigning overall ratings where there is likely inflation, and the final ratings are adjusted accordingly (see below).

Overall Grade Inflation by Regulator

Table 1 reports the extent of overall grade inflation by regulator and component region for all 1,407 exams. The most remarkable statistic in this table is that nearly half (47.1%) of all new CRA ratings have some type of overall inflation: likely inflation (15.0%); regular or one-level inflation (31.6%); or, gross or two-level inflation (0.5%).

The FDIC and FED are the leading inflators of overall CRA grades at 52.0% and 50.9%, respectively. The FED is the leader in standard one-level inflation at 36.8%, compared to 35.0% at the FDIC. The OCC follows third with 45.3% overall and 26.9% one-level inflation. These high rates of overall inflation in the 50% range suggest that the traditionally good CRA ratings for banks has as much to do with regulator friendliness as actual bank CRA performance.

Of equal interest is the fact that the OTS, the historically toughest CRA grader, is also the most realistic grader with only 29.7% overall inflation. If the OTS is a relatively realistic grader, as this analysis suggests, then it appears that the historically lower CRA ratings at thrifts may be due more to their (relatively poor) performance than to OTS examiners. Still, a nearly one-third inflation rate is not insignificant.

Most Significant CRA Grade Inflators

Table 1 helps pinpoint the regulatory source of CRA grade inflation. Excluding the Boston and New York FEDs, which have only three exams between them, the following are the top CRA grade inflators, all with 60% or higher inflation rates:

1. The Minneapolis FED, with a very high 91.3% CRA grade inflation rate, is without a doubt the most significant grade inflator of any region or regulator.

2. The Dallas FED has a 71.4% inflation rate (all of the one-level variety) for the seven banks it examined.

3. The St. Louis FED has a 66.7% inflation rate for the nine banks it examined.

4. The Southwestern district of the OCC has a 62.8% inflation rate, the highest by far at that regulator.

5. The Chicago FDIC region has a 61.9% inflation rate; this is the second largest district in terms of number of banks for any regulator.

6. The Dallas FDIC region has a nearly identical 61.5% inflation rate, tying the Chicago region for the highest such rate at the FDIC.

The Southeast region of the OTS has the highest inflation rate (48.8%) at that agency, with the West region (47.1%) closely behind. These inflation rates are more than double the comparable rates at the Central and Midwest OTS regions.

Most Realistic CRA Graders

At the other end of the spectrum are the regions with the lowest inflation rates representing examiners with the most realistic assessments of CRA performance. Excluding the Philadelphia FED, which has no inflation in its two exams, the following are the most realistic (i.e.,noninflationary) regions with inflation rates of 30% or less:

1. The New York FDIC region's 10.5% inflation rate is the lowest for any region of any regulator.

2. The Central region of the OTS has a 19.5% inflation rate, the lowest for that agency.

3. The Midwest region of the OTS has a 20.3% inflation rate, nearly tying it for the lowest inflation rate at the OTS.

4. The Southeastern district of the OCC, with its 23.7% inflation rate, is by far the lowest for that agency.

5. The Chicago FED has a 26.9% inflation rate, making it the most realistic CRA evaluator for the FED (excluding the Philadelphia FED with only two exams).

6. The Atlanta FED has a 30.0% inflation rate, the second best for that agency.

IMPLICATION OF RAMPANT GRADE INFLATION

Rampant Inflation of Outstanding Ratings

Approximately half of all CRA grade inflation involves O ratings that should be S ratings, and the other half are S ratings that should be NI ones. Moreover, there are some NI (and even a few S) ratings that should be SN ones.

An evaluation of inflation in O ratings is perhaps the most telling of regulatory sentiment towards CRA. With an extraordinary 88.6% inflation rate for O ratings, this means that virtually all O-rated banks have inflated ratings, with 22.0% likely inflation, 65.6% one-level inflation and 1.1% two-level inflation. This 88.6% inflation rate for O ratings is very close to the 83% rate based on the Q&A guidelines cited in Section VI.

Virtually all regulators have identical O-inflation rates in the 87-94% range. Over half of all regions have 100% O-inflation rates. With four out of five of the OTS regions having that rate, this suggests a softer side of that agency. The New York FDIC region, on the other hand, has the lowest O-inflation rate (25%).

Truly Outstanding Banks

There are 42 O-rated banks in this analysis without overall inflation. Added to this elite group of "truly outstanding" banks is the small Illinois thrift, which received an overall *deflated* S rating that truly should have been an O one. Thus, there are only 43 truly O-rated banks in this study or 3% of the total analyzed.

Excluding the latter bank, 18 of the 42 truly O—rated banks have no inflation in any of their four tests. The Memphis region of the FDIC examined a disproportionately high 22% of those banks. Also, of interest is the fact that only two of those 18 banks (both in New York) exceeded standards on all four tests.

Inflated S Ratings

Almost one third (32%) of all S ratings are inflated. While this inflation rate is nearly a third of the 88.6% for O ratings, the much larger number of S banks results in almost the same number of inflated banks for both ratings.

Compared to an inflated O rating, an inflated S one can be infinitely more valuable to a bank

because it is spared the dreaded NI or even SN rating. With regards to the latter case, there were three grossly inflated S ratings (1% of the 322 inflated ratings) that should have received SN ratings. Roughly 60% of the inflated ratings with standard one-level inflation should be in the NI category and 39% with likely inflation could be there.

The three banking regulators have identical 35% S-inflation rates, with the OTS at just over half of that amount with a much lower 19.7% S-inflation rate. Excluding the districts with just a handful of exams, the best examiners in this regard are at the New York region of the FDIC (6.7% S inflation rate), which is in stark contrast to the situation at the Minneapolis FED (83.3% S inflation rate).

There were nine banks that did <u>not</u> meet standards on two tests, yet they still received S ratings. Three of those banks did not exceed any standards, but they are given the benefit of the doubt with an S rating despite two average and two below-average test ratings. Only one of those nine banks has one-level inflation, which should drop it to the NI category, and three have likely inflation.

Inflated NI Ratings

Exactly half of the 30 NI-rated banks in this analysis have inflated ratings. Each of the regulators inflated at least one NI rating, with the OCC having a disproportionately high representation in this regard. It appears that the OTS developed its tough image on CRA ratings from the lower end of the scale: nearly half of the 34 below-average (30 NI and 4 SN) ratings in this analysis are OTS-regulated thrifts, more than twice what would be expected for its share of exams (16%) in this study.

Nine of the 30 NI rated banks, representing all four regulators, meet all standards but one; and, the LTD ratio is the deciding test in eight of those nine cases. One of those banks, a national bank in Kansas, even exceeds Test #2 standards; consequently, its final NI rating is based on performance that is above average on one test, average for two (Tests #3 and 4) and below average on another. This implies that the OCC (and other) examiners of these banks place far more weight on Test #1 compared to Tests #3 and 4 in contrast to the OCC's own guidelines.

Truly Substantially Noncompliant Banks

The regulators rated only four small banks SN in this analysis. This inflation analysis, however, concludes that there are 18 additional SN banks: three S-rated banks with gross inflation; 12 NI-rated banks with one-level inflation; and, three NI-rated banks with likely inflation. Thus, there are 22 "truly" SN banks. The OCC is somewhat disproportionately represented in terms of the inflated NI and grossly inflated S banks.

Summary of Inflation Analysis: Nominal vs. Real Ratings Distributions

The first part of Table 2 is the "nominal" or actual regulator—by—distict distribution of the 1,407 ratings analyzed here. The second set of columns there is the "real" or inflation-adjusted distribution taken from the above inflation analysis. The columns labeled "100% likely" count all of the "likely" inflated ratings identified in Table 1. The third set of columns in Table 2 labeled "50% likely" count only half of the "likely" inflated ratings in each category. This latter approach is preferred in the final analysis because of the uncertainty associated with assigning an overall rating that is "likely" inflated (i.e., where additional but unavailable data is needed for a full evaluation).

The distribution of nominal ratings for the 1,407 small banks in this analysis is 26.2%, 71.4%, 2.1%, and 0.3% for O, S, NI and SN ratings, respectively, rounded to 26%, 71%, 2%, and 0% in Table 2. The second set of columns there indicate that this nominal distribution becomes 3%, 71%, 24%, and 2%, using 100% of likely inflated ratings. In other words, the percentage of O and NI ratings is literally reversed by going from an inflated to a noninflated environment.

The comparable distribution counting only 50% of likely inflated ratings somewhat "smooths" out to 6%, 73%, 20%, and 1% for O, S, NI and SN ratings, respectively. This third set of columns in

Table 2 is considered the most realistic or "true" distribution of CRA ratings based on this analysis. This distribution is precisely the same (except for rounding) as the estimated 1992 real distribution contained in Thomas (1993). This suggests that while we may have a new CRA, we still have old CRA-style inflation.

Summary of Inflation Analysis by Regulator and Region

The nominal vs. real ratings distributions by regulator and region in Table 2 reveals that the proportion of truly O banks based on the 50% likely column ranges from 3-7% by regulator with a weighted average of 6%. This is because the FDIC, accounting for 56% of all exams in this analysis, has the highest percentage of such banks at 7%. The FDIC's New York Region with 16% of truly O banks leads all districts of all agencies (excluding a FED district with just a few exams); the OTS has the lowest percentage (3%) of truly O banks.

The proportion of *nominal* O ratings ranges from 14% at the OTS to 32% at the FDIC, for a wide 18% range (see first column in Table 2). This 18% pre-inflation regulatory rating range is collapsed to just 4% on a real basis when all friendly examiner subjectivities are stripped away from CRA ratings. Thus, there is really not that much inter-regulatory difference (only 4%) among the proportion of truly O banks. This can be viewed as further evidence in support of the Friendly Regulator Hypotheses.

At the other extreme, all banking agencies have 18-24% of real (50% likely) below-average ratings ranging from 18% at the OTS to 24% at the OCC; the OTS' West region leads all others with 47% in this category with the Minneapolis FED next at 39%. Because only 2% of pre-inflation ratings are below average, there is a narrow (3%) inter-regulatory nominal range compared to a somewhat wider (6%) real range.

RESULTS OF REGRESSION ANALYSIS

Overview of Regression Analysis

Regression analysis helps to explain, understand and hopefully make reasonably accurate predictions about the relationship between one "dependent" or explained variable and one or more "independent" or explanatory variables. The dependent variables of greatest interest for this analysis are the (1) individual test ratings and (2) overall CRA ratings. Many possible independent or explanatory variables, such as the actual performance test ratios and the past CRA rating, can be quantified but others can not such as examiner friendliness.

Alternative Model Specifications

One hundred and five different regression analyses are performed on both the total sample of 1,407 CRA exams and numerous subsets categorized by regulator and by different combinations of possible explanatory variables. Residual analysis indicates that the multiple linear regression model is an appropriate one for the data used.

Three basic models of the CRA exam rating process are tested:

Model #	Dependent Variables	Independent Variables
One	Test ratings (+1, 0 or -1)	Individual test ratios (percentages)
Two	Overall CRA rating (O, S, NI, or SN)	Test ratings (+1, 0, or -1) - (with and without prior year CRA rating)
Three	Overall CRA rating (O, S, NI, or SN)	Individual test ratios (percentages) (with and without prior year CRA rating)

Comparison of Alternative Models

The *first* model involves four sets of dependent (i.e., test ratings) and independent (i.e., the four

previously cited key ratios) variables. These are tested using simple, two-variable (one dependent and one independent) regressions for each test.

To the extent other possible test ratios (e.g., small business/farm or penetration), other regulatory factors (e.g., supplemental investment and service tests or fair lending violations) or nonregulatory factors (i.e., examiner friendliness) are important "explanatory" variables, they are not reflected in these specifications. If these other factors are important in deciding how examiners really make ratings, then the result will be lower than expected R-square values. Also if any data (e.g., Test #3 ratios) are biased, then this will likewise be reflected in the results. The expectation under the new performance-based CRA is that the R-square values should be reasonably high.

Even if examiners fully do their job in assigning the proper ratings (+1, 0, or -1) for the four tests, translations of that ratings matrix into the appropriate overall rating may be a problem. This is because the small bank exam doesn't have an explicit weighting scheme for overall ratings as is the case for large retail bank exams. The weighting scheme for small bank exams is an *implicit* one that is (literally) in the heads of examiners.

The *second* model seeks to understand the "average" such weighting scheme for each regulator and overall. As in the case of the first model, the second model does not specify other extraneous factors that can impact overall ratings. These other factors may be legitimate ones called for in the regulations (e.g., performance on supplemental tests, fair lending violations, complaints or continued poor performance without improvements) or purely illegitimate ones (i.e., the Friendly Regulator Hypothesis).

The *third* model is like a "check" on the first two. If Model One (A to B) and Model Two (B to C) result in high R-square values, then transitivity for Model Three (i.e., A to C) would likewise suggest high values. If this is not the case, then one or both of the first two steps (models) may have broken down. The second and third models are tested using both single and multiple regression analyses. The latter involves the same dependent variable (i.e., the final CRA rating) for the second and third models but different combinations of independent variables.

Results of Testing of First Model

Each of the four tests are evaluated independently to determine the relative R-square values. The respective sample sizes differ in each case depending upon data availability (a problem with Test #4). In fact, the only statistically insignificant result involved the Test #4 regression for the FDIC.

The higher the R-square value for a given test, the greater the percentage of variation in the dependent variable (i.e., the test rating) explained by variation in the independent variable (i.e., the test ratios). Regulators with higher R-square values generally have more "realistic" rating procedures based on the one ratio being examined for each test. Conversely, a low value indicates the influence of other quantitative or qualitative factors besides the one ratio being tested.

Table 3 summarizes the R-square values and the results of a t-Test (all values are significant except the above-cited one). The LAA ratio in Test #2 is the previously defined AA concentration ratio. The highest (and most statistically significant) R-squares for "All" banks are obtained for Test #1 on the LTD ratio and Test #2 on the AA concentration ratio, but these coefficients for all agencies combined are only 45% and 43%, respectively. The Test #1 R-square values are identical in the 45-46% range for the three bank regulators but 54% for the OTS. Test #2 values range from 39% at the OTS to 54% at the OCC.

The comparable overall value for Test #3, the LMI borrower ratio ("LMI—Ind"), is just 17%, ranging from a low of 10% at the FED to a high of 24% at the OCC. The lowest overall R-square value of only 6% is in Test #4, the LMI geography ratio ("LMI—Geo"), which ranges from an insignificant 2% at the FDIC to 34% at the OCC.

Summary of Findings of First Model

The regression analysis of the first model does not suggest that examiners are developing test

ratings based on the subject key ratios. No less than 46% (OTS Test #1) and as much as 98% (FDIC Test #4) of the variation in the individual test ratings are dependent upon quantitative or qualitative variables other than the respective tests. The OCC has the highest R-square values for three of the four tests (the OTS leads only for Test #1). This indicates that the OCC's matrix test ratings are likely to be more closely related to the actual ratios than any of the other regulators, but even the OCC's coefficients in the 24-54% range leave much to be desired.

Even in the cases of Tests #1 and 2, where there is general agreement on the appropriate ratios to use, the R-squares are only in the 39-54% range by agency or 43-45% overall. This means, in the best possible scenario, about half of the variation in the test ratings are due to other factors, likely subjective (i.e., friendly regulator) ones for these two "run-of-the-mill" tests. The situation is much worse for Test #3 and especially Test #4. These conclusions have obviously unfavorable implications for the other models in terms of the friendly examiner problem.

Presentation of Second and Third Model Results

The regression results for Models Two ("ratings") and Three ("values) are summarized together by variable in Table 4 and by regulator in Table 5. The dependent or "Y" current year rating variable is assigned values of 1, 2, 3, or 4 for O, S, NI, or SN, respectively. This ranking results in an inverse or negative relationship as the larger the number, the lower the rating. Thus, the explanatory variables, for the most part, have negative coefficients relative to the current CRA rating.

These tables report both simple and multiple regressions. The former are identified with data only in one of the "X" columns; the latter have data in more than one column. Independent variables X1 to X4 are the four test ratios, and X5 is the prior year's CRA rating. The last two columns in these tables report the "F" significance test: if the value in the first column exceeds the benchmark in the second, then the reported results are "significantly" correlated based on those tests and the dependent and independent variables are linearly related.

Of all the equations in Tables 4 and 5, the most important are those with all the four tests, X1 to X4, for the second and third models. These equations are summarized separately in Tables 6 and 7, respectively. The coefficients (of partial regression) within each X column indicate the average expected change in the Y value for each unit change in the X value, holding the effect of other factors constant. The higher these regression coefficients, the greater the impact on the overall CRA rating, other things equal. The "Y-Current Year Rating Intercept" is the expected value (rating) for that regulator grouping if the indicated test value(s) are zero.

Model Two Expectations

The highest single and multiple equation R-squares are obtained from the second model. But, this is expected as this is the only one of the three models that can be quickly "checked" by the casual PE reader. Even the most subjective examiner will "force" unjustified ratings into the performance test matrix, so it appears reasonably consistent with the final ratings. After all, most PE readers first look at the overall rating and then scan the ratings matrix. A friendly examiner who prepared a PE with a "window dressed" ratings matrix will have arranged the ratings so as to make them appear to be consistent with an inflated overall rating.

In other words, the overall CRA rating usually follows from the pattern of ratings in the performance matrix: ratings that exceed most standards will be O or S and the opposite ones will be NI or SN. Regardless of how subjective the ratings are in the matrix, the regression analysis only evaluates the statistical association between the final CRA rating and different combinations of the four test ratings (with and without the prior CRA rating).

Overall Multiple Regression Results of Model Two

Table 6 summarizes the four variable regression equations for Model Two by regulator. R-square values for the second model for all regulators are a significant 65% for the four tests; including the prior year rating increases the value to only 66% (Table 4). The four-test model has R-squares ranging from a low of 39% for the OTS to a high of 74% for the FDIC, with the FED (63%) and OCC (54%) in the middle. The addition of the past CRA rating increases the OTS value to 47% and the

FED to 68% but leaves the other two agencies relatively unchanged (Table 4). This suggests that these two agencies may consider a bank's past CRA record more than the other two in assigning the final rating.

Multiple vs. Simple Regression Approach to Explaining Overall Ratings

Model Two provides insight as to which of the four tests is weighted more or less for the different agencies. Do OCC examiners, for example, count Test #3 and 4 more than all others, as required in their guidelines?

There are two ways this issue is evaluated. *First*, on the basis of the above-defined regression coefficients in Table 6, and, *second*, on the basis of simple two variable regressions. The former coefficients hold constant the individual and combined effect of other variables, while the latter approach does not. This is most important in the case of the two LMI variables, as they are the only ones with a moderate (21—44%) degree of correlation between them.

Multiple Regression Results Comparing Four Tests in Model Two

Table 6 clearly reveals the overall importance of Tests #4 and 3 ratings with individual regression coefficients of —.36 and —.35 each, respectively, for "All" regulators. The —.36 coefficient for Test #4 means that for a unit change in X4 (Test #4 rating), there is on average in the data a change of —.36 in the overall CRA rating (where an S is 2 and an O is 1), holding all other factors constant. The Test #1 rating ranks third at —.31, and Test #2 is the least important at only —.13.

Table 6 reports that the FED follows that ranking, but the FDIC and OTS put Test #1 over Test #3. The OCC surprisingly ranks Test #3 at the top but Test #4 at the bottom, apparently contradicting its own guidelines about the importance of both tests. In summary, the multiple approach shows Test #4 ratings as the most important for overall ratings for three of four agencies, with ratings on Tests #1 and 3 vying with each other for significance; Test #2 ratings, by contrast, are relatively less important, especially for the OCC and OTS.

Simple Regression Results Comparing Four Tests in Model Two

The simple regression results are presented in the first five sections of Table 4 and dispersed throughout Table 5. The top section of Table 5 for "All" regulators indicates that the Test #3 rating is the most important with a single independent variable R-square of 36%. This means that 36% of the variation in overall CRA ratings at all agencies on average is explained by the variation in Test #3 ratings. However, the impact of other test ratings (or other factors) on the examiners' overall rating is not held constant. Tests #4 and 1 follow at 32% each based on additional single variable regressions. The prior CRA rating and Test #2 equations are at the bottom with separate values of 17% and 16%, respectively. Table 5 contains a separate section for each of the four regulators.

Multiple Regression Results Comparing Four Tests in Model Three

The R-square coefficients for Model Three (Table 7) are about half of what they were for the previous model. This is because this model regresses the overall CRA rating against the actual test data, rather than subjective (and possibly contrived) test ratings as done in the last model.

The R-square value for all regulators is only 21% for all four tests but 31% with the addition of the past rating. Table 7 discloses that the R-square values for the four test equations range from 18% at the FED to 31% at the OTS, possibly suggestive of the latter agency's greater concern for the facts (i.e., test data); the OCC (21%) and FDIC (24%) are in the middle of that range. The addition of the past CRA rating (see bottom section of Table 4) increases the range from 22% (at the OCC) to 46% (at the OTS) with the FED at 30% and the FDIC at 32%. This means that 54 to 78% of the variation in the overall CRA ratings are unexplained by other factors unspecified in this model.

Simple Regression Results Comparing Four Tests in Model Three

According to the top section of Table 5 reporting the Model Three regressions on "values," Test #1 stands out as the most important item (10%) for all regulators combined, and the other tests are much less important.

Individual results for each regulator (except the OTS) emphasize the importance of Test #1, but even its highest R-square of 19% (at the FDIC) is relatively low indicating the weak explanatory power of Model Three; Test #2 has the highest value for the OTS, with Test #1 a close second.

Testing of Regression Models

The "robustness" of Models Two and Three are tested in terms of their ability to "predict" overall CRA ratings based on individual test ratings and actual data, respectively. Table 8 displays the mean test rating scores for the four variable regression in Model Two and the resultant "predicted" Y or overall CRA rating vs. the observed average ("Y mean"). Because of the fairly high R-squares and other statistical features of that model, the actual and predicted CRA ratings are fairly close for all regulators. This is not as much the case for the third model with its lower R-squares, as the predicted Y values exceed actual ones for the FDIC and OCC and are below them for the FED and OTS (Table 9). This is consistent with the low R-square values' indication that the current year rating is explained by factors other than the test ratios.

Considerably more caution must be taken in attempting to make predictions at the individual case level as compared to the above aggregate level using mean observations. The first bank with complete data for all four tests in the data base was selected for each regulator, and a prediction was made of their CRA ratings based on the second and third models. All four banks have S (2.0) ratings, and the predictions range from a low of 1.56 and 1.61 for the banks regulated by the FDIC and FED, respectively to a high of 2.08 for the OCC and 2.07 for the OTS for Model Two. The much lower R-squares in Model Three, among other things, resulted in much less accurate predictions ranging from a low of 1.67 at the FED to a high of 1.76 at the OTS; the other two agencies are in the middle at 1.72 and 1.73. All of these predictions round out to a 2.0 or S rating, which is the actual rating in each case.

CONCLUSIONS

The various analyses of new CRA data conducted here are conclusive in documenting widespread grade inflation, with nearly half of small bank CRA ratings in this category. This research clearly supports the "Friendly Regulator Hypothesis." That is, the single most important factor in a bank's overall new CRA rating is the examiner and all of the friendly and other subjective characteristics that go along with the person responsible for assigning ratings.

These findings are most lucid in the first regression model above, where roughly half of the matrix ratings on the four tests could not be explained by the most commonly accepted ratios used and recommended by the examiners themselves. The second model, as expected, shows reasonable explanatory power, but the (inflation) damage was already done by that time with the inflated ratings in the PE matrix. The third model shows relatively little relationship between overall ratings and test ratios, a finding that is foreshadowed by the initial inflationary test ratings documented in the first model; as a result, the predictive ability of the third model is relatively limited.

Tests #1, 3 and 4 traded places in terms of being the most significant at different times, and in some cases Test #2 is rated at the top. Such tremendous variation in the implicit weighting patterns for the four tests by the regulators strongly suggests the need for an explicit weighting scheme similar to that in the large retail bank exam. A consolidated compliance/CRA regulatory body representing all four agencies would likely result in an examination staff capable of making more consistent and realistic CRA ratings.

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NOTES

Federal Deposit Insurance Corporation (FDIC), Federal Reserve System (FED), Office of the Comptroller of the Currency (OCC), and Office of Thrift Supervision (OTS), collectively referred to here as the "bank regulators."

Some cynics are quick to point out that friendly CRA examiners often view their government job as a stepping stone to a more lucrative industry job as a CRA/compliance officer or consultant, pointing out numerous examples of such "revolving door" employees and especially CRA consultants.

An alternate explanation is that banks have mastered the CRA examination and evaluation process to guarantee passing ratings, regardless of actual CRA performance.

LMI levels are defined at 80% or below an area 's median family income levels.

Cited in U.S. Congress, 1992, Volume 1, p. 18.

See Thomas (1993) for all publicly available pre-1990 CRA ratings.

See Thomas (1993 and 1998).

These included methods of ascertaining credit needs; marketing programs; geographic distribution of loans; provision of banking services; etc (Thomas, 1993).

This approach is also much more manageable when faced with thousands of exams.

There were a few documented cases of "deflated" CRA ratings (Thomas, 1993).

This may have resulted in sample self-selection bias, as the regulators, aware of the purpose of the study, may have submitted their "best" PEs to the Senate staff.

There was no statutory change in the law but rather in the regulatory policies and examination procedures implementing it.

Small banks defined in this manner represent 81% of all banks but only 14% of industry assets (Thomas, 1998, p. 219).

A fifth test, "response to complaints" by customers, is generally irrelevant as very few banks (about 1%) have such complaints in their public file, and those that do are almost always judged to be handled satisfactorily or better (Thomas, 1998, p. 233).

This sample of 31 large retail and 31 special purpose banks represented all such PEs that were made available by regulators at that time (Thomas, 1998).

Using rather broad guidelines in the new CRA, banks determine the geographic boundaries of their AA; most small banks define one local AA, but those with distant branches may have multiple AAs.

Considering that most of the key CRA performance ratios and benchmarks are based on the AA definition, bankers have the opportunity to impact their performance via the definition of their

AA(s).

This matrix has four rows, one for each of the four tests, and three columns, one for each of the possible ratings of exceeds, meets, or does not meet standards for satisfactory performance.

One small thrift in Illinois, upon being contacted by the author about its overall deflated rating was well aware of and "satisficed" with it, as they preferred the lower S rating over an O one. In fact, the banker argued with the examiner who insisted on the higher rating! The banker, who prevailed in the argument, preferred an S rating for many reasons, including the argument that less would be expected from them if they had the same (S) rating of nearly every other bank; "There 's only one direction to go when you 're on top." (Thomas, 1998).

The less-preferred alternative is to define small loans on the basis of loan size, using $1million or less for small businesses and $500,000 or less for small farms.

The number of such geographies must be adjusted for those that have no income such as parks or other public areas.

What makes this case so surprising is that examiners from that same Atlanta region (and perhaps the same examiners themselves) were at the other bank in town a few weeks earlier to conduct a CRA exam; that bank rightfully received an exceeds standards rating for its 84% average LTD ratio.

An exam not meeting standards on one of the four tests is designated as "-1."

Only 7.5% of the PEs in this sample reported supplemental investment or service tests, and two thirds of these banks ended up with an O rating (Thomas, 1998).

Even though two of those four banks have 100% LMI geographies, the examiners could have completed a micro-analysis within them (similar to the Test # 4 example in Section IVE), a middle-vs. upper-income comparative analysis, or a penetration or other analysis.

A review of 63 small bank PEs by four of the six OCC regions under the new CRA (OIG Office of Inspector General, U.S. Department of the Treasury, 1998) concluded that its Southwestern district had the highest incidence of "inadequate documentation" and was tied with the Midwestern district for the most frequent incidence of exceptions; there was no mention of grade inflation in that Treasury analysis.

This suggests that the consistent application of the regulators ' own overall ratings guidelines as described there would significantly reduce overall O grade inflation, even without adjusting for grade inflation in the four individual performance tests.

		Likely Inflation		Grade Inflation		Gross Inflation		Total Inflation		No Inflation		All CRA Exams	
Regulator	District	#	%	#	%	#	%	#	%	#	%	#	%
FDIC	Atlanta	14	14.6%	34	35.4%	1	1.0%	49	51.0%	47	49.0%	96	100.0%
	Boston	8	21.1%	12	31.6%	0	0.0%	20	52.6%	18	47.4%	38	100.0%
	Chicago	23	15.6%	67	45.6%	1	0.7%	91	61.9%	56	38.1%	147	100.0%
	Dallas	8	20.5%	15	38.5%	1	2.6%	24	61.5%	15	38.5%	39	100.0%
	Kansas City	55	18.3%	114	38.0%	1	0.3%	170	56.7%	130	43.3%	300	100.0%
	Memphis	13	11.9%	24	22.0%	0	0.0%	37	33.9%	72	66.1%	109	100.0%
	New York	0	0.0%	2	10.5%	0	0.0%	2	10.5%	17	89.5%	19	100.0%
	San Francisco	7	21.2%	5	15.2%	1	3.0%	13	39.4%	20	60.6%	33	100.0%
	Subtotal FDIC	128	16.4%	273	35.0%	5	0.6%	406	52.0%	375	48.0%	781	100.0%
FED	Atlanta	2	10.0%	4	20.0%	0	0.0%	6	30.0%	14	70.0%	20	100.0%
	Boston	0	0.0%	1	100.0%	0	0.0%	1	100.0%	0	0.0%	1	100.0%
	Chicago	2	7.7%	5	19.2%	0	0.0%	7	26.9%	19	73.1%	26	100.0%
	Cleveland	0	0.0%	2	33.3%	0	0.0%	2	33.3%	4	66.7%	6	100.0%

Table 1
Overall Grade Inflation Under the New CRA by Regular and District

Regulator	District		O		S		NI		Subtotal		SN		Total
	Dallas	0	0.0%	5	71.4%	0	0.0%	5	71.4%	2	28.6%	7	100.0%
	Kansas City	9	25.7%	10	28.6%	0	0.0%	19	54.3%	16	45.7%	35	100.0%
	Minneapolis	3	13.0%	18	78.3%	0	0.0%	21	91.3%	2	8.7%	23	100.0%
	New York	2	100.0%	0	0.0%	0	0.0%	2	100.0%	0	0.0%	2	100.0%
	Philadelphia	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	100.0%	2	100.0%
	Richmond	4	12.9%	10	32.3%	0	0.0%	14	45.2%	17	54.8%	31	100.0%
	San Francisco	1	11.1%	3	33.3%	0	0.0%	4	44.4%	5	55.6%	9	100.0%
	St. Louis	1	11.1%	5	55.6%	0	0.0%	6	66.7%	3	33.3%	9	100.0%
	Subtotal FED	24	14.0%	63	36.8%	0	0.0%	87	50.9%	84	49.1%	171	100.0%
OCC	Central	7	17.5%	12	30.0%	1	2.5%	20	50.0%	20	50.0%	40	100.0%
	Midwestern	16	30.8%	11	21.2%	0	0.0%	27	51.9%	25	48.1%	52	100.0%
	Northeastern	2	6.9%	8	27.6%	0	0.0%	10	34.5%	19	65.5%	29	100.0%
	Southeastern	4	10.5%	5	13.2%	0	0.0%	9	23.7%	29	76.3%	38	100.0%
	Southwestern	10	23.3%	17	39.5%	0	0.0%	27	62.8%	16	37.2%	43	100.0%
	Western	1	4.8%	7	33.3%	0	0.0%	8	38.1%	13	61.9%	21	100.0%
	Subtotal OCC	40	17.9%	60	26.9%	1	0.4%	101	45.3%	122	54.7%	223	100.0%
OTS	Central	2	2.6%	13	16.9%	0	0.0%	15	19.5%	62	80.5%	77	100.0%
	Midwest	4	6.8%	8	13.6%	0	0.0%	12	20.3%	47	79.7%	59	100.0%
	Northeast	4	10.5%	9	23.7%	1	2.6%	14	36.8%	24	63.2%	38	100.0%
	Southeast	8	19.5%	12	29.3%	0	0.0%	20	48.8%	21	51.2%	41	100.0%
	West	1	5.9%	7	41.2%	0	0.0%	8	47.1%	9	52.9%	17	100.0%
	Subtotal OTS	19	8.2%	49	21.1%	1	0.4%	69	29.7%	163	70.3%	232	100.0%
All Regulators		211	15.0%	445	31.6%	7	0.5%	663	47.1%	744	52.9%	1407	100.0%

Note: All small bank new CRA performance evaluations made available by regulators as of September 1996.

	Table 2													

Nominal vs. Real New CRA Ratings Percentage Distribution by Regular and District

		Nominal (Actual) Distribution				Real (100% Likely) Distribution*				Real (50% Likely) Distribution**			
Regulator	District	O	S	NI	SN	O	S	NI	SN	O	S	NI	SN
FDIC	Atlanta	41%	59%	0%	0%	3%	82%	15%	0%	8%	80%	12%	0%
	Boston	34%	66%	0%	0%	0%	82%	18%	0%	4%	84%	12%	0%
	Chicago	41%	56%	2%	0%	3%	73%	21%	3%	7%	72%	18%	2%
	Dallas	26%	69%	5%	0%	0%	62%	33%	5%	3%	65%	28%	4%

Regulator	Region												
	Kansas City	32%	65%	2%	0%	4%	65%	30%	1%	8%	68%	24%	1%
	Memphis	17%	83%	1%	0%	6%	69%	25%	0%	8%	71%	21%	0%
	New York	21%	79%	0%	0%	16%	79%	5%	0%	16%	79%	5%	0%
	San Francisco	24%	73%	3%	0%	3%	76%	18%	3%	9%	74%	14%	3%
	Subtotal FDIC	32%	66%	2%	0%	4%	71%	24%	1%	7%	72%	20%	1%
FED	Atlanta	10%	90%	0%	0%	0%	80%	20%	0%	0%	85%	15%	0%
	Boston	100%	0%	0%	0%	0%	100%	0%	0%	0%	100%	0%	0%
	Chicago	15%	85%	0%	0%	4%	81%	15%	0%	4%	85%	12%	0%
	Cleveland	33%	67%	0%	0%	0%	100%	0%	0%	0%	100%	0%	0%
	Dallas	43%	57%	0%	0%	0%	71%	29%	0%	0%	71%	29%	0%
	Kansas City	20%	74%	3%	3%	0%	63%	31%	6%	1%	73%	20%	6%
	Minneapolis	48%	52%	2%	0%	0%	57%	43%	0%	2%	59%	39%	0%
	New York	50%	50%	0%	0%	0%	50%	50%	0%	25%	50%	25%	0%
	Philadelphia	0%	100%	0%	0%	0%	100%	0%	0%	0%	100%	0%	0%
	Richmond	32%	68%	0%	0%	6%	74%	19%	0%	11%	71%	18%	0%
	San Francisco	33%	56%	11%	0%	0%	78%	22%	0%	0%	83%	17%	0%
	St. Louis	44%	56%	0%	0%	11%	56%	33%	0%	11%	61%	28%	0%
	Subtotal FED	28%	70%	1%	1%	2%	71%	25%	1%	4%	75%	20%	1%
OCC	Central	13%	85%	3%	0%	0%	63%	33%	5%	3%	66%	26%	5%
	Midwest	27%	69%	4%	0%	4%	67%	25%	4%	10%	71%	15%	4%
	Northeast	14%	83%	3%	0%	3%	72%	21%	3%	5%	72%	19%	3%
	Southeast	5%	95%	0%	0%	3%	76%	21%	0%	3%	82%	16%	0%
	Southwest	23%	77%	0%	0%	2%	56%	42%	0%	7%	58%	35%	0%
	West	19%	81%	0%	0%	0%	81%	19%	0%	2%	79%	19%	0%
	Subtotal OCC	17%	81%	2%	0%	2%	68%	28%	2%	5%	70%	22%	2%
OTS	Central	8%	88%	4%	0%	1%	84%	13%	1%	1%	86%	12%	1%
	Midwest	10%	86%	2%	2%	0%	86%	12%	2%	3%	85%	11%	2%
	Northeast	13%	87%	0%	0%	5%	66%	26%	3%	7%	68%	22%	3%
	Southeast	24%	71%	5%	0%	0%	73%	24%	2%	2%	78%	17%	2%
	West	29%	41%	24%	6%	0%	53%	41%	6%	3%	50%	41%	6%
	Subtotal OTS	14%	81%	4%	1%	1%	78%	19%	2%	3%	79%	16%	2%
All Regulators	Total	26%	71%	2%	0%	3%	71%	24%	2%	6%	73%	20%	1%

* Inflation-adjusted distribution covering 100% of likely inflated ratings.
** Inflation-adjusted distribution covering 50% of likely inflated ratings.
All small bank new CRA performance evaluations made available by regulators as of September 1996.

<table>
<thead>
<tr><th colspan="7">Table 3
Model One Regression Results</th></tr>
<tr><th>Test #</th><th>Test Ratio</th><th>"All"</th><th>FDIC</th><th>FED</th><th>OCC</th><th>OTS</th></tr>
</thead>
<tbody>
<tr><td>1</td><td>LTD</td><td>44.66%</td><td>45.05%</td><td>45.85%</td><td>46.22%</td><td>54.38%</td></tr>
<tr><td>2</td><td>LAA</td><td>42.58%</td><td>41.98%</td><td>45.21%</td><td>53.61%</td><td>39.46%</td></tr>
<tr><td>3</td><td>LMI - Ind.</td><td>16.98%</td><td>11.65%</td><td>9.55%</td><td>23.53%</td><td>15.13%</td></tr>
<tr><td>4</td><td>LMI - Geo.</td><td>6.47%</td><td>2.19%*</td><td>9.13%</td><td>33.89%</td><td>15.48%</td></tr>
</tbody>
</table>

* Not statistically significant at 95% level of confidence
Note- Table shows R-Square values of regression of test ratings (+1, 0, -1) vs. ratio values

Regulator	var	Model Type	R-Square Coefficient	Y-Current Year Rating Intercept	X1-LTD	X2-LAA	X3-LMI Ind.	X4-LMI Geo	X5-Prior CRA Rating	F-Test	F(n-P-1) 1-tailed @ .05
OTS		Ratings (+1, 0, -1)	13.64%	2.022	-0.2716					36.32	3.84
FED		Ratings (+1, 0, -1)	24.06%	1.873	-0.4851					53.53	3.84
OCC		Ratings (+1, 0, -1)	30.27%	1.928	-0.4214					95.92	3.84
All		Ratings (+1, 0, -1)	31.52%	1.909	-0.4932					647.14	3.84
FDIC		Ratings (+1, 0, -1)	44.29%	1.884	-0.6095					620.09	3.84
All		Values (%ages)	10.15%	2.344	-0.0087					158.80	3.84
OTS		Values (%ages)	10.43%	2.467	-0.0069					26.77	3.84
OCC		Values (%ages)	11.14%	2.344	-0.0083					27.58	3.84
FED		Values (%ages)	12.71%	2.513	-0.0119					24.62	3.84
FDIC		Values (%ages)	19.44%	2.615	-0.0142					188.26	3.84
OCC		Ratings (+1, 0, -1)	4.87%	1.948		-0.1777				11.32	3.84

Table 4
Models Two and Three Regression Results by Variable

OTS		Ratings (+1, 0, -1)	10.69%	2.023		-0.2597				27.54	3.84
All		Ratings (+1, 0, -1)	15.70%	1.965		-0.3591				261.84	3.84
FDIC		Ratings (+1, 0, -1)	18.13%	1.938		-0.4052				172.78	3.84
FED		Ratings (+1, 0, -1)	22.12%	2.007		-0.4391				47.99	3.84
OCC		Values (%ages)	0.53%	2.050		-0.0025	*			1.16*	3.84
FDIC		Values (%ages)	3.43%	2.333		-0.0077				27.49	3.84
All		Values (%ages)	4.71%	2.401		-0.0078				68.97	3.84
FED		Values (%ages)	6.53%	2.619		-0.0107				11.73	3.84
OTS		Values (%ages)	10.69%	2.526		-0.0077				27.53	3.84
OTS		Ratings (+1, 0, -1)	10.14%	1.947			-0.3355			25.94	3.84
All		Ratings (+1, 0, -1)	36.16%	1.937			-0.5869			796.50	3.84
FED		Ratings (+1, 0, -1)	37.87%	1.996			-0.5938			102.99	3.84
FDIC		Ratings (+1, 0, -1)	41.10%	1.912			-0.6353			544.32	3.84
OCC		Ratings (+1, 0, -1)	41.52%	2.005			-0.5744			156.91	3.84
OTS		Values (%ages)	0.17%	1.948			-0.0015	*		0.372*	3.84
FED		Values (%ages)	0.95%	1.786			-0.0023	*		1.4*	3.84
FDIC		Values (%ages)	1.53%	1.824			-0.0038			9.14	3.84
All		Values (%ages)	2.35%	1.906			-0.0043			27.51	3.84
OCC		Values (%ages)	3.16%	2.012			-0.0042			6.04	3.84

OCC		Ratings (+1, 0, -1)	2.42%	1.861				0.0079		3.94	3.84
OTS		Ratings (+1, 0, -1)	26.26%	1.957				-0.4784		81.19	3.84
All		Ratings (+1, 0, -1)	32.25%	1.857				-0.6528		628.77	3.84
FED		Ratings (+1, 0, -1)	34.09%	1.833				-0.6818		84.82	3.84
FDIC		Ratings (+1, 0, -1)	35.58%	1.825				-0.7016		422.59	3.84
FDIC		Values (%ages)	0.12%	1.707				-0.0006	*	0.35*	3.84
All		Values (%ages)	0.75%	1.822				-0.0016		4.65	3.84
FED		Values (%ages)	1.23%	1.676				0.0021	*	1.3*	3.92
OCC		Values (%ages)	1.50%	1.927				-0.0018	*	1.48*	3.92
OTS		Values (%ages)	6.42%	2.061				-0.0060		8.78	3.84
OCC		Ratings (+1, 0, -1)	4.74%	1.375					0.2393	10.49	3.84
FDIC		Ratings (+1, 0, -1)	16.16%	0.830					0.4611	147.66	3.84
All		Ratings (+1, 0, -1)	17.13%	0.872					0.4691	285.35	3.84
OTS		Ratings (+1, 0, -1)	23.68%	0.856					0.5484	71.07	3.84
FED		Ratings (+1, 0, -1)	29.04%	0.727					0.5452	68.74	3.84
OTS	1, 2, 3, 4	Ratings (+1, 0, -1)	39.32%	2.075	-0.2117	-0.0878	-0.1798	-0.3589		36.45	2.37
OCC	1, 2, 3, 4	Ratings (+1, 0, -1)	54.47%	2.077	-0.2820	-0.0722	-0.4548	0.0023		46.66	2.37

FED	1, 2, 3, 4	Ratings (+1, 0, -1)	62.89%	2.113	-0.2952	-0.1542	-0.3532	-0.3693		68.21	2.37
All	1, 2, 3, 4	Ratings (+1, 0, -1)	64.72%	2.081	-0.3078	-0.1337	-0.3522	-0.3632		604.35	2.37
FDIC	1, 2, 3, 4	Ratings (+1, 0, -1)	73.56%	2.072	-0.3571	-0.1515	-0.3491	-0.3589		530.01	2.37
FED	1, 2, 3, 4	Values (%ages)	18.24%	3.321	-0.0068	-0.0136	-0.0026	0.0024		4.85	2.53
All	1, 2, 3, 4	Values (%ages)	20.69%	3.438	-0.0098	-0.0092	-0.0060	-0.0016		35.15	2.37
OCC	1, 2, 3, 4	Values (%ages)	21.41%	2.830	-0.0100	-0.0017	-0.0029	-0.0024		5.52	2.53
FDIC	1, 2, 3, 4	Values (%ages)	24.47%	3.751	-0.0166	-0.0088	-0.0055	-0.0012		18.96	2.37
OTS	1, 2, 3, 4	Values (%ages)	30.85%	3.394	-0.0070	-0.0084	-0.0073	-0.0051		13.61	2.37
OTS	all	Ratings (+1, 0, -1)	46.83%	1.408	-0.1824	-0.0776	-0.1473	-0.2872	0.3309	39.29	2.21
OCC	all	Ratings (+1, 0, -1)	55.16%	2.260	-0.2905	-0.0741	-0.4700	0.0030	-0.0902	36.65	2.21
All	all	Ratings (+1, 0, -1)	65.81%	1.795	-0.2946	-0.1180	-0.3301	-0.3414	0.1387	498.52	2.21
FED	all	Ratings (+1, 0, -1)	67.79%	1.560	-0.2447	-0.0967	-0.3038	-0.3525	0.2593	66.92	2.21
FDIC	all	Ratings (+1, 0, -1)	73.85%	1.898	-0.3495	-0.1400	-0.3357	-0.3436	0.0837	422.02	2.21
OCC	all	Values (%ages)	21.88%	2.828	-0.0104	-0.0018	-0.0032	-0.0024	-0.0023	4.31	2.37
FED	all	Values (%ages)	30.05%	2.373	-0.0055	-0.0104	-0.0019	0.0025	0.3089	7.39	2.37

			R-Square Coefficient	Y-Intercept	X1	X2	X3	X4	X5	F-Test	F(n-P-1)
All	all	Values (%ages)	30.54%	2.371	-0.0079	-0.0065	-0.0051	-0.0013	0.3524	46.42	2.21
FDIC	all	Values (%ages)	32.15%	2.592	-0.0130	-0.0055	-0.0049	-0.0007	0.3160	21.51	2.21
OTS	all	Values (%ages)	46.44%	2.138	-0.0058	-0.0058	-0.0062	-0.0042	0.4644	20.81	2.21

* Not statistically significant at 95% level of confidence
Source: K. H. Thomas, Ph. D.

Table 5 Models Two and Three Regression Results by Regular									
Model Type	R-Square Coefficient	**Variable Coefficients**						F-Test	F(n-P-1) 1-tailed @ .05
		Y-Current Year Rating Intercept	X1-LTD	X2-LAA	X3-LMI Ind.	X4-LMI Geo	X5-Prior CRA Rating		
"All" Regulators									
Ratings (+1, 0, -1)	15.70%	1.965		-0.3591				261.84	3.84
Ratings (+1, 0, -1)	17.13%	0.872					0.4691	285.35	3.84
Ratings (+1, 0, -1)	31.52%	1.909	-0.4932					647.14	3.84
Ratings (+1, 0, -1)	32.25%	1.857				-0.6528		628.77	3.84
Ratings (+1, 0, -1)	36.16%	1.937			-0.5869			796.50	3.84
Ratings (+1, 0, -1)	64.72%	2.081	-0.3078	-0.1337	-0.3522	-0.3632		604.35	2.37
Ratings (+1, 0, -1)	65.81%	1.795	-0.2946	-0.1180	-0.3301	-0.3414	0.1387	498.52	2.21
Values (%ages)	0.75%	1.822				-0.0016		4.65	3.84
Values (%ages)	2.35%	1.906			-0.0043			27.51	3.84
Values (%ages)	4.71%	2.401		-0.0078				68.97	3.84
Values (%ages)	10.15%	2.344	-0.0087					158.80	3.84

Values (%ages)	20.69%	3.438	-0.0098	-0.0092	-0.0060	-0.0016		35.15	2.37
Values (%ages)	30.54%	2.371	-0.0079	-0.0065	-0.0051	-0.0013	0.3524	46.42	2.21
FDIC									
Ratings (+1, 0, -1)	16.16%	0.830					0.4611	147.66	3.84
Ratings (+1, 0, -1)	18.13%	1.938		-0.4052				172.78	3.84
Ratings (+1, 0, -1)	35.58%	1.825				-0.7016		422.59	3.84
Ratings (+1, 0, -1)	41.10%	1.912			-0.6353			544.32	3.84
Ratings (+1, 0, -1)	44.29%	1.884	-0.6095					620.09	3.84
Ratings (+1, 0, -1)	73.56%	2.072	-0.3571	-0.1515	-0.3491	-0.3589		530.01	2.37
Ratings (+1, 0, -1)	73.85%	1.898	-0.3495	-0.1400	-0.3357	-0.3436	0.0837	422.02	2.21
Values (%ages)	0.12%	1.707				-0.0006	*	0.35*	3.84
Values (%ages)	1.53%	1.824			-0.0038			9.14	3.84
Values (%ages)	3.43%	2.333		-0.0077				27.49	3.84
Values (%ages)	19.44%	2.615	-0.0142					188.26	3.84
Values (%ages)	24.47%	3.751	-0.0166	-0.0088	-0.0055	-0.0012		18.96	2.37
Values (%ages)	32.15%	2.592	-0.0130	-0.0055	-0.0049	-0.0007	0.3160	21.51	2.21
FED									
Ratings (+1, 0, -1)	22.12%	2.007		-0.4391				47.99	3.84
Ratings (+1, 0, -1)	24.06%	1.873	-0.4851					53.53	3.84
Ratings (+1, 0, -1)	29.04%	0.727					0.5452	68.74	3.84
Ratings (+1, 0, -1)	34.09%	1.833				-0.6818		84.82	3.84

Ratings (+1, 0, -1)	37.87%	1.996			-0.5938			102.99	3.84
Ratings (+1, 0, -1)	62.89%	2.113	-0.2952	-0.1542	-0.3532	-0.3693		68.21	2.37
Ratings (+1, 0, -1)	67.79%	1.560	-0.2447	-0.0967	-0.3038	-0.3525	0.2593	66.92	2.21
Values (%ages)	0.95%	1.786			-0.0023	*		1.40*	3.84
Values (%ages)	1.23%	1.676				0.0021	*	1.30*	3.92
Values (%ages)	6.53%	2.619		-0.0107				11.73	3.84
Values (%ages)	12.71%	2.513	-0.0119					24.62	3.84
Values (%ages)	18.24%	3.321	-0.0068	-0.0136	-0.0026	0.0024		4.85	2.53
Values (%ages)	30.05%	2.373	-0.0055	-0.0104	-0.0019	0.0025	0.3089	7.39	2.37
OCC									
Ratings (+1, 0, -1)	2.42%	1.861				0.0079		3.94	3.84
Ratings (+1, 0, -1)	4.74%	1.375					0.2393	10.49	3.84
Ratings (+1, 0, -1)	4.87%	1.948		-0.1777				11.32	3.84
Ratings (+1, 0, -1)	30.27%	1.928	-0.4214					95.92	3.84
Ratings (+1, 0, -1)	41.52%	2.005			-0.5744			156.91	3.84
Ratings (+1, 0, -1)	54.47%	2.077	-0.2820	-0.0722	-0.4548	0.0023		46.66	2.37
Ratings (+1, 0, -1)	55.16%	2.260	-0.2905	-0.0741	-0.4700	0.0030	-0.0902	36.65	2.21
Values (%ages)	0.53%	2.050		-0.0025	*			1.16*	3.84
Values (%ages)	1.50%	1.927				-0.0018	*	1.48*	3.92
Values (%ages)	3.16%	2.012			-0.0042			6.04	3.84
Values (%ages)	11.14%	2.344	-0.0083					27.58	3.84

Values (%ages)	21.41%	2.830	-0.0100	-0.0017	-0.0029	-0.0024		5.52	2.53
Values (%ages)	21.88%	2.828	-0.0104	-0.0018	-0.0032	-0.0024	-0.0023	4.31	2.37
OTS									
Ratings (+1, 0, -1)	10.14%	1.947			-0.3355			25.94	3.84
Ratings (+1, 0, -1)	10.69%	2.023		-0.2597				27.54	3.84
Ratings (+1, 0, -1)	13.64%	2.022	-0.2716					36.32	3.84
Ratings (+1, 0, -1)	23.68%	0.856					0.5484	71.07	3.84
Ratings (+1, 0, -1)	26.26%	1.957				-0.4784		81.19	3.84
Ratings (+1, 0, -1)	39.32%	2.075	-0.2117	-0.0878	-0.1798	-0.3589		36.45	2.37
Ratings (+1, 0, -1)	46.83%	1.408	-0.1824	-0.0776	-0.1473	-0.2872	0.3309	39.29	2.21
Values (%ages)	0.17%	1.948			-0.0015	*		0.37*	3.84
Values (%ages)	6.42%	2.061				-0.0060		8.78	3.84
Values (%ages)	10.43%	2.467	-0.0069					26.77	3.84
Values (%ages)	10.69%	2.526		-0.0077				27.53	3.84
Values (%ages)	30.85%	3.394	-0.0070	-0.0084	-0.0073	-0.0051		13.61	2.37
Values (%ages)	46.44%	2.138	-0.0058	-0.0058	-0.0062	-0.0042	0.4644	20.81	2.21

* Not statistically significant at 95% level of confidence

Table 6
Model Two Summary of
Four Variable Regression Equations by Regulator

Regulator	Current Year Rating	Intercept	LTD Rating	LAA Rating	LMI- Ind. Rating	LMI- Geo. Rating	R-Square Coefficient
"All"	Y=	2.0808-	0.3078-	0.1337-	0.3522-	0.3632	64.72%
FDIC	Y=	2.0722-	0.3571-	0.1515-	0.3491-	0.3589	73.56%
FED	Y=	2.1128-	0.2952-	0.1542-	0.3532-	0.3693	62.89%
OCC	Y=	2.0768-	0.2820-	0.0722-	0.4548 +	0.0023	54.47%
OTS	Y=	2.0747-	0.2117-	0.0878-	0.1798-	0.3589	39.32%

Note: Overall CRA ratings (Y) defined as O (1.0), S (2.0), NI (3.0), or SN (4.0); all equations statistically significant at 95% level of confidence.

Table 7
Model Three Summary of Four Variable Regression Equations by Regulator

Regulator	Current Year Rating	Intercept	LTD Ratio	LAA Ratio	LMI- Ind. Ratio	LMI- Geo. Ratio	R-Square Coefficient
"All"	Y=	3.4384-	0.0098-	0.0092-	0.0060-	0.0016	20.69%
FDIC	Y=	3.7507-	0.0166-	0.0088-	0.0055-	0.0012	24.47%
FED	Y=	3.3214-	0.0068-	0.0136-	0.0026+	0.0024	18.24%
OCC	Y=	2.8302-	0.0100-	0.0017-	0.0029-	0.0024	21.41%
OTS	Y=	3.3944-	0.0070-	0.0084-	0.0073-	0.0051	30.85%

Note: Overall CRA ratings (Y) defined as O (1.0), S (2.0), NI (3.0), or SN (4.0); all equations statistically significant at 95% level of confidence.

Table 8
Model Two Testing of Four Variable Regression Equations by Regulator

Regulator	Current Year Rating- Predicted	Current Year Rating- Mean	LTD Mean Rating	LAA Mean Rating	LMI- Ind. Mean Rating	LMI- Geo. Mean Rating
"All"	1.7619	1.7637	0.2911	0.5537	0.2940	0.1424
FDIC	1.6986	1.7017	0.2983	0.5813	0.3316	0.1762
FED	1.7430	1.7430	0.2690	0.6023	0.4269	0.1265
OCC	1.8489	1.8485	0.2018	0.5919	0.2825	0.0875
OTS	1.9201	1.9130	0.3696	0.3870	0.0783	0.0789

Note: Overall CRA ratings (Y) defined as O (1.0), S (2.0), NI (3.0), or SN (4.0)

Regulator	Current Year Rating-Predicted	Current Year Rating-Mean	LTD Mean Ratio	LAA Mean Ratio	LMI- Ind. Mean Ratio	LMI- Geo. Mean Ratio
"All"	1.7940	1.7655	66.27	81.29	34.24	28.17
FDIC	1.7439	1.7017	64.26	80.44	35.13	32.48
FED	1.7215	1.7427	64.73	81.13	43.52	23.67
OCC	1.9036	1.8430	60.78	82.13	37.08	32.40
OTS	1.9150	1.9224	79.42	78.01	23.31	19.22

Table 9
Model Three Testing of
Four Variable Regression Equations by Regulator

Note: Overall CRA ratings (Y) defined as O (1.0), S (2.0), NI (3.0), or SN (4.0)