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Section: 209

Sampling

Summary: This Regulatory Bulletin issues revised Examination Handbook Section 209, Sampling, and rescinds RB 32-3 dated September 25, 1995.

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SUMMARY OF CHANGES

This handbook section was substantially revised. The revisions are aimed at facilitating the risk-focused examinations and avoiding unnecessary and nonproductive facets of the sampling process. Under the revised procedures, examiners will determine, based on asset type, performance, and risks, to what extent sampling of homogeneous assets is needed. The revised procedures also eliminate the requirement for examiners to perform systematic sampling for either homogeneous or nonhomogeneous assets. Judgmental and minimum cut-off or dollar-proportional methodologies are the preferred methods to allow examiners to focus their reviews on larger and higher risk assets. The main topics of this handbook section are:

- **Sampling Overview**

Defines sampling and provides an overview of advantages of sampling and its role in the examination process.

- **Sampling Techniques**

Defines statistical and nonsystematic or judgmental sampling and the benefits of both techniques. Defines various sampling methods, including numerical interval, dollar proportional, minimum cut-off, and judgmental sampling and the advantages, limitations of each technique, and methodology used in examinations.

- **Sampling Guidelines for Homogeneous Assets**

Defines homogeneous assets. Describes the objectives of homogeneous assets and criteria used to select sample size. Stresses the importance of performing a pre-scoping analysis to determine to the level and extent sampling is needed to advance examination objectives. Stresses the need for judgmental sample selection to focus primarily on risk. Outlines the purpose and objective of asset review, including adequacy of underwriting and classification.

- Sampling Guidance for Nonhomogeneous Assets

Defines nonhomogeneous assets. Describes the objectives of nonhomogeneous assets and criteria used to select sample sizes, including minimum coverage ratios. Stresses the importance of performing a pre-sampling analysis to determine the level and extent of coverage ratio needed to assess the adequacy of the institution's internal asset review function and evaluate asset quality. Stresses the need to perform both a minimum cut-off (or dollar proportional) and judgmental sample selection to focus primarily on risk. Outlines the purpose and objective of asset review, including adequacy of underwriting and an evaluation of internal classification.

- Other

The remainder of the section includes revised examination objectives and examination procedures. Appendices C, D, and E were removed.

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Sampling

Sampling is the process of selecting a limited number of assets from a larger group of assets while still obtaining enough information from the characteristics of the sample to enable you to draw and support a reliable conclusion about the portfolio of assets.

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- Sampling is often used in your review or assessment of the adequacy of an association's policies, underwriting standards, risk management functions, and the overall quality of its asset portfolios. Sampling enables you to verify the association's compliance with safe and sound lending standards, regulatory requirements, and its internal underwriting policies and procedures. Examples of sampling in the examination process include:
- Testing the level of reliance that you can place on the association's Internal Asset Review (IAR) program in general and for the purpose of including the results of the IAR program in meeting minimum examination review coverage standards.
 - Testing the adequacy and reliability of an association's internal controls and credit risk management systems.
 - Testing or verifying the adequacy of the association's compliance management program and overall compliance performance.
 - Determining if an expansion of the asset review is needed.

The objective of sampling is to provide statistical information about a portfolio of assets by examining a few selected assets. For loan sampling, such statistical information might include:

- Loan and documentation quality
- Adherence to underwriting standards
- The difference between an institution's IAR classifications and those of the examiners.

Using a limited sample of assets involves an inherent risk of sampling error, which is the risk that the quality of assets selected for review will not be representative of the overall portfolio. The cost associated with sampling error depends on the ramification of the error. An incorrect conclusion for a risky portfolio in a savings association with little capital has a different impact than a similar error on a low risk portfolio in a savings association with a substantial capital buffer.

Generally, increasing the size of the sample reduces sampling risk. Large samples are costly and time consuming, so you must balance the risk of sampling error against the burden and cost of reviewing large samples. This Handbook Section provides sampling guidance designed to allow you to limit the number of assets you review while mitigating sampling risks.

While sampling is used in asset quality, compliance, and fair lending reviews, the sampling procedures discussed in this Handbook Section relate primarily to transactional testing for asset quality reviews.

SAMPLING TECHNIQUES

You will use different sampling methodologies depending on the type of review. There are two ways to select samples:

- Randomly, based on a statistical or systematic approach
- Nonrandomly, based on specific insights (judgment) or particular asset characteristics

You are likely to use both statistical and judgmental samples in the examination process. Examples of statistical sampling are dollar proportional and numerical interval sampling. Examples of nonrandom or judgmental techniques are minimum dollar cut-off and selecting specific loans based on early performance problems.

The benefits of using statistical sampling include:

- The ability to quantify results and relate them to the larger group.
- The ability to quantify sampling risk.

The benefits of using judgmental sampling include:

- Effective use of examiner experience.
- Targeted review of areas where prior information suggests asset quality issues exist.

Statistical Sampling

With statistical sampling, the objective is to form conclusions based on the sample that you can apply to the entire population with a calculated level of confidence.

Numerical Interval Sampling

In numerical sampling, each individual item in a portfolio is equally likely to be chosen. For example, loan files may be arranged by loan number, and each nth file is selected for review (where n is the interval between samples you select for review, such as each 12th file). OTS does not generally use numerical sampling in examinations.

1Dollar-Proportional Sampling

In dollar-proportional sampling, each dollar in a portfolio is equally likely to be chosen. As a result, the likelihood that a loan will be chosen is proportional to its size. Larger dollar loans will tend to be selected, but not exclusively. With dollar-proportional sampling, you use a running total of dollar amounts in the portfolio from which you are sampling and choose each nth dollar. The loan with which that dollar is associated is selected for review. A dollar-proportional sample will consist of all items that either:

- Are larger than the selected dollar interval or
- Cause the running total of the list to exceed the dollar interval.

For purposes of sampling an association's internal loan review program, you might wish to set a dollar interval of three percent of generally accepted accounting principles (GAAP) equity capital (see below for more detail on selecting an interval). Therefore, for an institution with GAAP equity capital of \$100 million, the dollar interval is \$3 million.

Selecting an interval

- From a random start on a list of loans being reviewed, start adding the dollar amounts of the loans, moving down the list.
- When an item causes the running total to meet or exceed the dollar interval (\$3 million in this example), select that item for review.
- Each time you select a loan, reset the running total to zero.
- Then add up loan amounts until you reach \$3 million again and include in the sample the item that makes the running total equal or exceed \$3 million.
- You may round or truncate amounts to eliminate immaterial amounts for easier adding. For example, you may round a \$1,234,567 to \$1,235,000.
- Continue adding items as you go down the list and select the item that causes the running total to meet or exceed \$3 million.

Using this example, you will have selected all individual items with a book value in excess of \$3 million for the sample. You will also have selected smaller items that cause the running total to meet or exceed \$3 million for testing.

Calibrating a Statistical Sample

The key issue when designing a sample is how close you want your sample estimate to be representative of the actual portfolio characteristics. The costs of sampling error can help guide your choices. In an institution with relatively little capital plus reserves, you have less room to make a mistake (tolerance for error) in your estimates of nonperforming loans than in an institution with a larger cushion to absorb

losses. This margin for estimation error will generally be expressed as a percentage of an institution's capital plus reserves and will depend on your evaluation of its current condition, past evaluations of the quality of its policies and procedures, and the materiality of the portfolio being reviewed. For established portfolios at institutions with well-tested processes, a range of 15 to 20 percent of capital plus reserves may be acceptable. A larger margin suggests a smaller sample would suffice. For new lines of business or institutions with less reliable internal processes, limits of 5 to 10 percent may be appropriate, which indicates the need for larger sample size.

The second issue in choosing a sample size is the probability that your estimate will be within your desired range around the true parameter (confidence level). Any statistical estimation process involves some degree of error. There will always be some difference between your estimate and the true parameter value purely due to chance. This is particularly important when testing an institution's IAR, where you are comparing your estimates to those of the institution. In that case, you want to be able to distinguish between differences that are due to disparities in the actual evaluation processes as opposed to those that are just a reflection of insignificant random variations. Nonstatistical or Judgmental Sampling

There are several types of nonstatistical sampling that you might use in the examination process. The two most commonly used are minimum cut-off sampling and judgmental selection.

Minimum Cut-Off Sampling

You may determine that it is best to use minimum cut-off sampling to analyze nonhomogeneous items. This sampling method selects all items with a value equal to or greater than a cut-off amount. The following example shows the basic steps to select the items to review in minimum cut-off sampling.

- Determine the approximate book value of the nonhomogeneous loans in the portfolio. Include any unfunded commitments in selection. You can do this with internal management reports or a Thrift Financial Report.
- Set a target range for a percentage of that outstanding balance plus any unfunded commitment to review. (See Sampling Guidelines for Nonhomogeneous Assets below.)
- Select a cut-off for the dollar value of the balances of loans to review. A good starting point might be 0.25 percent of total loans or 2.5 percent of the institution's Tier 1 capital, rounded to a convenient number. Select all loans at and above the dollar cut-off in the population you are sampling.
- Calculate the percentage of portfolio value selected. If the percent selected is significantly different from the target percent, adjust the cut-off so that the percent selected falls within the target range.

You can use the minimum cut-off sampling methodology to review the underwriting standards used by an association for its nonhomogeneous items.

Note: You may also use dollar-proportional sampling to independently sample nonhomogeneous loans instead of the minimum cut-off method since it also selects loans with individual book values over a certain material dollar interval/amount (as well as smaller loans). This method is particularly useful for portfolios with an extreme variance in dollar amounts or that you cannot divide between homogeneous and nonhomogeneous loans.

Judgmental Selection

You may use judgmental selection in asset quality reviews. Judgmental sampling may be justified when you have prior knowledge about a portfolio that can help to focus your review on particular concerns. Using your prior knowledge, a judgmental sample is deliberately structured to select a sample populated with known examples of the attributes or characteristics of concern. The feature that distinguishes judgmental from statistical sampling is that each item in the universe does not have an equal or random chance of being selected. While judgmental sampling can highlight risk and streamline a review, it cannot support a statistically valid projection of sample results to the portfolio.

Judgmental sampling can help to identify issues within a given area. You can use judgmental selection, for example, to:

- Sample nonhomogeneous items that may have a greater than normal probability of being adversely classified.
- Test the effect of or compliance with specific underwriting criteria, policies or procedures.
- Expand a systematic sample if that sample did not cover significant subcategories or if you need to isolate a problem.
- Identify ways in which to divide a portfolio into groups that may then be examined with statistical samples. For example, a judgmental sample may help to determine whether to divide a mortgage portfolio by geography or loan type before using statistical sampling on each subgroup.

The number of judgmental samples depends on the circumstances at each association. The number of samples required generally corresponds to the number of issues you want to address, although you may be able to use one sample for a number of issues.

The method for selecting a judgmental sample and the size of the sample will also depend on the circumstances at each association as well as the purpose of the sample selection. When expanding an initial sample using judgmental selection, expand the size of the sample only by the amount necessary to provide sufficient additional information to determine the cause or extent of a problem. However, you should exercise *discretion*. In some cases, other, more efficient means are preferable to selecting an expanded sample. For example, if you notice a slight increase in delinquency for a certain group of homogeneous loans, it may be due to a change in underwriting criteria, economic, or other factors for which sampling additional loan files may be unproductive. Conversely, if underwriting standards for those loans have not changed, sampling may highlight an inconsistent application of underwriting

standards or poor loan administration and collection efforts. If you foresee a substantial increase in sampling effort, assess and balance the effect of this increase of total examination time against the value of the information such an increase may yield versus the need to move the examination forward.

SAMPLING GUIDELINES FOR HOMOGENEOUS ASSETS

For the purpose of this Handbook Section, “homogeneous assets” are typically underwritten based on common, uniform standards. They include one- to four-family residential real estate loans, home improvement loans, home equity loans, owner-occupied manufactured housing loans, other residential property loans, consumer installment loans and leases, consumer credit cards, personal overdrafts, and personal loans on deposits. Because homogeneous loans and leases are generally classified based on delinquency status, you should primarily use sampling to determine whether the association consistently follows prudent underwriting standards, rather than to assess the adequacy of the IAR program.

The first step is to determine the extent that sampling of homogeneous assets is necessary. This should be based on:

- Your assessment of the risk profile of the various loan portfolios,
- Adequacy of an association’s underwriting policies and standards,
- Asset acquisition policies and practices,
- Internal controls,
- Portfolio performance, and
- The structure, administration, scope, and risk profile.

You should sample higher risk, new loan types (or new sources), and marginal or poor performing loan segments. Sampling may also be necessary to verify that the association follows interagency policies for nontraditional mortgage loans, account re-aging, payment deferral or loan renewals and exception-based approvals, because practice may vary from stated policies. The coverage and results of the association’s IAR program for homogeneous assets is also a factor in the level of sampling needed. The association’s IAR program should follow the classification requirements of the Uniform Retail Credit Classification and Account Management Policy (See [CEO Memo 128](#) dated July 27, 2000). The policy is discussed in [Appendix A, Section 261](#) of the Examination Handbook.

Begin with a top-down approach to review overall portfolio performance, including all significant subcategories of assets. Use electronic loan data, if available, to facilitate your portfolio evaluation and sample selection. With respect to loans made since the previous examination, determine if the association is using prudent underwriting standards and is exercising proper lending controls. This is particularly important for exception-based loan approvals. With respect to loans made in prior periods, evaluate asset quality by reviewing overall portfolio performance. If seasoned loans display performance problems, determine the cause of the problems, such as poor underwriting, high-risk loan products (such as high loan-to-value (LTV), option adjustable rate mortgage, and low documentation), or

economic factors, and evaluate the effect that such factors have on the association's asset quality. Be alert to permissive or poorly supervised re-aging, restructuring, deferral, or rewriting policies that may mask delinquency problems. Also, be alert to poor loan administration and collection efforts, which may give rise to higher delinquency in seasoned portfolios. (See the Uniform Retail Credit Classification and Account Management Policy – [CEO Memo 128](#), July 2000 for a discussion on re-aging.)

If the IAR program is adequate and underwriting standards and asset quality are sound, the sampling of homogeneous assets can be minimal; however, sampling should be more robust for higher risk assets and for associations with subprime lending programs with an aggregate credit exposure greater than or equal to 25 percent of its tier 1 capital, or when the institution originates and sells subprime assets but does not retain them. (See [CEO Memo 137](#), Expanded Guidance for Subprime Lending Programs.) If you determine that the IAR program is inadequate or fails to cover some loan types, if you have performance or underwriting concerns, or if the association has a subprime lending program, you should select a sufficient sample of homogeneous assets for review to enable you to assess the association's asset quality.

Sample Selection for Homogeneous Assets

Select a sample of homogeneous assets to review (see [Appendix B, Sample Methods](#)). Focus your selection on high-risk areas and in areas where you have performance or underwriting concerns. Select loans made during prior review periods as necessary to evaluate the association's asset quality, particularly when the overall loan performance of those loans is a concern. Consider including each of the following subcategories in your sample of homogeneous assets:

- Loan or investment types for which exceptions were reported in the last examination;
- High risk loan or investment types;
- High loan-to-value loans;
- Loans with inadequate documentation of the borrower's ability to pay;
- Nonamortizing or negatively amortizing loans;
- Loans made as exceptions to stated underwriting policies;
- Loan types that have experienced a high level of re-aging, restructuring, deferrals, or rewrites over the past year;
- Loan types that experience higher than average delinquency or early default rates;
- New loan or investment products;
- Loans originated by new departments, personnel, or brokers;
- Loan types where loan volume or loan exceptions has increased dramatically;

- Loans sold with recourse.

Look for differences in underwriting standards for the various loan subcategories. Use electronic loan data to facilitate your review, if available.

Review of Homogeneous Asset Samples

Review the selected sample of homogeneous loans to ascertain whether those made during the review period were underwritten in a prudent manner and in compliance with the association's policies, and are classified appropriately. For determining whether an asset is underwritten in a prudent fashion, focus on the overall quality of the asset, the documentation of the borrower's willingness and ability to repay the loan, and documentation for collateral support. Begin by reviewing a small sample of each risk type. Document your work and your conclusions but documentation of individual loan data on work papers is only needed when you plan to cite problems or deficiencies in the Report of Examination (ROE), or based on a regional office determination that documentation of individual loan data is appropriate and necessary in a particular instance.

An association's underwriting policies often allow for exceptions to general underwriting standards. For example, an association may have generally applicable debt-to-income ratios for home mortgage loans, but may allow borrowers to exceed those ratios if the loan has other credit strengths such as a low loan-to-value ratio or the borrower has a high credit score. While a small amount of exception loans is not a supervisory concern, a large volume of exception loans subjects the institution to greater credit risk and should generally be subject to criticism in the ROE.

For associations with prudent underwriting standards, focus on whether the loan comports with internal standards. For loans that differ from internal standards, focus on whether the loan was prudently underwritten, whether departures from the association's policies are justified and uniformly applied, and whether exceptions were authorized and appropriately reported to management or the board of directors.

Include in your review:

- Homogeneous assets (or commitments) that are unusually large in relation to their portfolios, because these assets are exceptions to the norm and may be commercial purpose loans; and
- Assets that are related to nonhomogeneous assets (such as loans to the same obligors, principals, guarantors, or otherwise for their benefit).

If the review of homogeneous assets reveals a level of credit risk higher than you had assessed during the sample selection phase (such as poorly underwritten loans, loans made as exceptions to stated underwriting standards, or groups of loans with documentation or performance issues), then consider expanding your sample to include additional loans within those groups.

When you note problems in the review sample, determine if the problems are isolated or systemic: whether there is a trend and whether material noncompliance with regulation and policy has, in fact, occurred. If there is a pattern of noncompliance with OTS and interagency policies, guidelines, and

regulations, determine the frequency and extent of such noncompliance. Rather than continuing to enlarge the sample to find every exception, focus on why the exceptions are occurring and how they affect asset quality. Then conduct any additional examination procedures needed and recommend corrective action.

Review of Homogeneous Asset Classifications

Confirm that the association's classifications of homogeneous assets are based primarily on delinquency status. Loans should be classified in accordance with instructions in [Examination Handbook Section 260](#), Classification of Assets, and [CEO Memo 128](#), Uniform Retail Credit Classification and Account Management Policy, dated July 27, 2000.

SAMPLING GUIDELINES FOR NONHOMOGENEOUS ASSETS

"Nonhomogeneous" assets are those where underwriting criteria are less likely to be uniform and classification decisions are based on broader considerations than just the loan's delinquency status. For example, nonhomogeneous assets may include construction, land, and land development loans, commercial mortgage loans, multifamily mortgage loans, commercial loans, private placement, municipal and corporate securities, and other investments. For nonhomogeneous assets, you will use sampling to:

- Assess the quality and test the reliability of the association's IAR program.
- Determine if you can use the results of the IAR program in meeting minimum examination sampling coverage standards.
- Verify the overall quality of the association's assets, the soundness of and compliance with its underwriting standards and compliance with OTS and interagency policies, guidelines, and regulations.

OTS requires sampling of nonhomogeneous assets in all examinations. Sampling of nonhomogeneous assets is necessary to determine if:

- The association is applying prudent underwriting standards.
- The association is complying with applicable policies, guidelines, and regulations.
- The IAR function is adequate.
- Internal loan classifications are consistent with OTS and interagency classification standards.
- The portfolio quality is consistent with the association's strategic objectives and acceptable from a safety and soundness point of view.

The extent of sampling will depend on your assessment of the adequacy of the association's policies and underwriting standards, asset acquisition strategies, as well as its internal controls in these areas. If

an association has adequate policies, procedures, and controls, and performance is satisfactory, then you should be able to use the minimum sampling requirements outlined below to draw conclusions about asset quality. If, however, an association has marginal, inadequate, or poorly implemented underwriting policies, procedures, and controls, or performance levels or trends raise concerns, then you should review a larger sample to evaluate asset quality.

Sampling of nonhomogeneous assets should start with an estimate of the extent of adverse classification based on internal classifications, examiner classifications from the preceding examination, loan performance, the adequacy of lending policies and procedures and how effectively they are followed. Include both seasoned loans and loans made during the review period (because you are assessing overall asset quality and the association's ongoing internal asset review procedures).

Based on the expected condition of the assets, set an initial coverage range for the review of the entire nonhomogeneous portfolio. Where available, use electronic loan data to facilitate your portfolio evaluation and sample selection.

You should sample two different populations of nonhomogeneous assets:

- First, sample loans reviewed by the association under its IAR program to determine whether the association properly reviews its assets, whether its classifications are consistent with regulatory and policy standards, and whether the IAR program is reliable for the purpose of including IAR program results in meeting minimum examination sampling coverage standards.
- The second sampling requirement is referred to as a judgmental sampling. The judgmental sample should focus on higher risk loans, new loan products, and loan types that may not be covered by the association's IAR program.

The combined samples should generally total from 20 percent to 40 percent of the aggregate portfolio value of nonhomogeneous assets, depending on the risk profile of the portfolio. This includes nonhomogeneous assets reviewed by the institution's IAR function if it is deemed reliable. You should review 10 percent of nonhomogeneous assets regardless of the IAR coverage; however, loans you review to assess IAR adequacy may be included in this total.

When sampling risk is minimal, you may select a combined sample size of 20 percent of nonhomogeneous loans. This applies to examinations of associations that:

- Are highly rated and well capitalized.
- Have high asset quality.
- Have excellent lending standards, underwriting policies, and internal controls.
- Exhibit no material areas of concern.
- Have a history of good portfolio performance and no significant asset quality problems.

- Have not experienced rapid growth in their nonhomogeneous portfolio, introduced new products, materially changed underwriting standards, or experienced material turnover in lending personnel.

In such circumstances, the Examiner-in-Charge, in consultation with the Field Manager, will determine what sampling coverage is appropriate for the institution, depending on the risk profile of the association, the time between examinations, and the scoping objectives.

Evaluation of Internal Asset Review Programs

Assess the structure, administration, scope, and results of the association's IAR program. The association's IAR program should be independent, staffed with experienced and well-trained personnel, and include periodic sampling of all asset types. The IAR should identify all major portfolio problems and provide an accurate assessment of the association's overall asset quality. The IAR program should also assess risk of loss so management may determine appropriate levels of specific and general allowances. Review the association's documentation of its IAR programs sampling process to ensure that all asset types were adequately sampled.

[CEO Memo 140, Effective Internal Asset Review Systems](#), and [Attachment 1 of Appendix A to Examination Handbook Section 261](#), Adequacy of Valuation Allowances, provide further guidance for evaluating IAR programs.

Use the results of your review in conjunction with other assessment factors to evaluate the effectiveness of the association's IAR process.

If you determine that the IAR program is unacceptable due to its structure, coverage, or unreliability of findings, then you should proceed with the minimum examination sampling coverage (discussed below). In such cases, only include the assets you review in the minimum coverage standards. In order to initiate corrective action, discuss IAR program deficiencies with management, in the ROE, and in the meeting with the board of directors.

If you conclude that the IAR program is effective and its classifications are reliable, assets reviewed under the IAR program may be included in meeting the sampling coverage objective determined appropriate for the association during the scoping process.

Sampling Methodology

Use of a *statistical* sampling technique for review of internally reviewed nonhomogeneous assets in cases where you expect to count all assets covered by the IAR as part of the exam loan review coverage. In most cases you should use the *dollar-proportional methodology*, which works best for portfolios with a wide range of loan sizes. The dollar-proportional methodology is explained more fully under Sampling Overview.

If you do not plan to count IAR reviewed assets as part of the loan review coverage *nonstatistical* methods may be used. *Dollar cut-off* is one nonstatistical selection criteria that is effective at selecting the highest dollar exposure. OTS generally discourages the use of numerical interval sampling because it

often results in reviewing inconsequential and low risk assets; however, it may be appropriate in very large savings associations where it may be needed to achieve minimum coverage levels.

Sampling of Nonhomogeneous Loans not Covered by the IAR

In some cases the association's IAR process may not include loan file reviews of all nonhomogeneous loans. For example, loans under a particular dollar exposure or with sufficient payment history may not be subject to individual reviews. However, an association's credit risk management process should include some type of monitoring to assess the general level of credit risk that exists in the loans not reviewed. This monitoring may include some type of evaluation of economic factors that impact the loans such as property valuation trends. Portfolios with sufficient origination histories should be analyzed by vintage to detect unusual performance trends. An option for monitoring may also include performing a test on a portion of the portfolio by obtaining additional information such as updated cash flow coverage, collateral values, or credit histories.

If the IAR program of loan reviews and monitoring does not provide adequate coverage either through individual loan reviews or some monitoring process, you should consider performing additional loan review or increasing your coverage to assess the level of risk in these portfolios. Use whatever selection process is most efficient in determining the level of risk inherent in the assets not covered by the IAR. The selection criteria may be judgmental and rely on certain screening criteria such as: internal risk ratings, LTV, debt service coverage, year of origination, payment record, etc.

You may use IAR program findings for individual assets for examination purposes if the analyses are found to be reliable. You may use the findings even if the IAR program is incomplete, such as when the IAR program does not include reviews of insider loans or loans less than 90 days old. Although an IAR program may be incomplete in some respects, it may otherwise be adequate and may serve to inform you of problems identified by the IAR process.

Judgmental Sampling of Nonhomogeneous Assets

In addition to sampling assets reviewed under the association's IAR program, an independent or judgmental sample is often appropriate. If you determine that the IAR program is unacceptable due to its structure, coverage, or unreliability of findings, then you must conduct a judgmental sample of the association's loans. In addition, there are a number of other reasons for conducting a judgmental sample:

- To evaluate loans with a high potential for unrecognized loss, e.g., nonaccrual loans, and troubled, collateral dependent assets.
- To assess the adequacy of underwriting for new or high growth lending programs.
- To review loan portfolios not adequately covered by the IAR.
- To assess credit administration practices for obtaining current financial statements, financial statement analysis and monitoring, loan modification, and updating collateral values.

It is your responsibility to determine the appropriate level and scope of the judgmental sample. The sample methodology used for the judgmental sample should be designed to efficiently achieve the objective. For example, if the purpose of the sample is to test the underwriting of a new loan program, the selection of a risk-focused sample may be the appropriate sample methodology. However, if you are testing for the overall risk or potential of loss in a portion of the portfolio not covered by the IAR, a minimum cut off or dollar proportional sample would be appropriate. The judgmental sample should not be limited by origination date or performance. To target the groups of assets that are the most likely to warrant adverse classification in material amounts, the sample should include a selection of assets with high risk of material loss.

General guidance for dollar-proportional, minimum cut-off and judgmental sampling is discussed under Sampling Techniques.

Review of Judgmental Sample

Review the selected sample to ascertain whether the assets were underwritten in a prudent manner, in compliance with the association's policies, and whether the association has properly classified them. The guidance provided in the various Asset Quality Handbook sections should help you evaluate whether the selected assets were prudently underwritten.

Review of Previously Examined Assets

In general, you should limit your analysis of performing, nonclassified assets reviewed in prior examinations to a quick review of the previous examination line sheets, the asset's current performance, and new file information for indications of a material change in the condition or cash flow of the obligor or the collateral. Update the previous examination line sheets with the current balance, performance information, and current financial data. In most instances, a brief review of the updated line sheet will be all that is needed to determine if the asset is properly classified.

Expanding the Scope of the Judgmental Sample

Your total sample should be sufficient to allow you to assess the extent of any credit quality problems and their effect on recognized and unrecognized loan losses, valuation allowances, and capital. As the examination progresses and you assess the extent of any problems, you may need to expand your judgmental sample to ensure you have sufficiently assessed the association's asset quality. If additional review increases adverse classifications and the need for loss recognition by a material amount (for example, if additional adverse classifications are material in relation to capital), you should increase the sample size. When a review of additional assets would not materially increase adverse classifications, loss recognition, or otherwise influence anticipated supervisory decisions, the sample is adequate.

Exhibit 1 Asset Groups with High Risk of Material Loss

Troubled assets, including assets:

- With principal or interest past due for 30 days or more;
- Renewed without principal reduction or interest collection;
- With interest only or interest reserve Commercial Real Estate loans;
- Designated as Troubled Debt Restructurings;
- With extended maturities or due dates;
- With significant capitalized interest;
- That are restructured troubled debts; or
- In nonaccrual status.

Loans identified as problems, including loans:

- Previously classified by examiners;
- Internally classified;
- On the thrift's problem list or watch list; or
- Identified in director or committee minutes, audits, or other sources, as having more than normal risk.

Loans to borrowers in groups who present special risk, including loans to:

- Insiders (officers, directors, stockholders);
- Insiders of other financial institutions;
- Related interests of insiders;
- Entities with classified loans elsewhere;
- Customers with overdrafts or cash items; or
- Guarantors and principals of commercial borrowers.

Loans with collateral or repayment sources presenting special risk, including loans:

- In specific high-risk markets (e.g., subprime, commercial real estate, land speculation, leveraged buy-outs, start-up businesses, restaurants, mobile home loans and loans to mobile home dealers, and dealers of used cars).
- Out of territory loans.

Participations and loans sales that are:

- Purchased (both nonhomogeneous assets and portfolios of homogeneous loans);
- Sold with recourse;
- Sold with representations and warranties greater than 120 days; or
- Where significant or increasing repurchase (or buy backs) have occurred.

Other assets with special risks, including:

- Loans to facilitate sale of real estate owned;
- Risky concentrations of loan types or collateral;
- Nonaccrual investments;
- Real estate owned or in judgment;
- Defaulted or downgraded debt securities; or
- Assets not confirmed by auditors attempting positive confirmations.

REFERENCES

United States Code (12 USC)

Home Owners' Loan Act

§ 1463(c) Stringency of Standards

Code of Federal Regulations (12 CFR)

§ 560.160 Classification of Certain Assets

§ 560.170 Establishment and Maintenance of Records

Office of Thrift Supervision Guidance

Examination Handbook

Chapter 200 Asset Quality

Section 260 Classification of Assets

Section 261 Valuation of Assets (Appendix A)

CEO Memos

CEO 128 Revised, Uniform Retail Credit Classification and Account Management Policy

(July 2000)

CEO 137 Expanded Guidance for Subprime Lending Programs

CEO 140 Effective Internal Asset Review Systems

CEO 325 Guidance on Prudent Commercial Real Estate Loan Workouts

CEO 329 Accounting for Credit Losses and Impairment

CEO 336 Meeting the Credit Needs of Creditworthy Small Business Borrowers

Sampling Program

EXAMINATION OBJECTIVES

To select a sample of homogeneous assets that will enable the examiner to evaluate the institution's underwriting and draw conclusions about asset quality.

To assess the Internal Asset Review (IAR) program to draw a conclusion about the reliability of the institution's IAR program and, for nonhomogeneous assets, to determine if the assets reviewed under the IAR program can be included in the examination asset review sample.

To select a sample of nonhomogeneous assets that, together with the review of the adequacy of the IAR program, will enable the examiner to draw conclusions about the institution's underwriting and asset quality.

EXAMINATION PROCEDURES

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Reviewing the Institution's Underwriting Policies

1. Review the general ledger to ascertain the overall characteristics of the loan portfolio. Determine the number of loans held in portfolio for each of the different loan types, i.e., one- to four-family residential loans, consumer loans, business loans, and commercial real estate (CRE) loans, etc. Also determine the type and amount of investment securities. Ensure that adequate records are readily available to facilitate the loan sampling review.

 2. Review the adequacy of the institution's policies for underwriting and acquiring assets pursuant to the other sections of Chapter 200 of this Handbook.
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Testing the Internal Asset Review (IAR) Program

3. Review the preceding report of examination and all IAR-related comments, exceptions, and recommendations noted and determine if management has taken appropriate corrective action.
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4. Review the institution's IAR program pursuant to [CEO Memo 140](#), Effective Internal Asset Review Systems. Review IAR program sampling methodology and obtain schedules of internally reviewed nonhomogeneous assets.

For homogeneous assets reviewed under the institution's IAR program, determine whether the institution's classifications are based primarily on delinquency status pursuant to [CEO Memo 128](#), Revised Uniform Retail Credit Classification and Account Management Policy (July 2000). Proceed with step 7 for reviewing homogeneous assets.

If the policies and procedures of the IAR program are deemed sufficient, select a representative sample of nonhomogeneous assets reviewed in the IAR program and proceed with step 5.

Note: If the IAR program is simply incomplete, e.g., it does not include reviews of a particular category of assets, and the rest of the IAR program is considered acceptable, then the examiner may still proceed with step 5 to determine if the internal classifications of the acceptable portion of the IAR program may be included in the minimum examination sampling coverage standards. You should conduct an independent sampling and review of those categories of assets for which the IAR program is not acceptable.

-
5. Review the selected assets for classification. If you find internally reviewed classifications are acceptable, then all assets reviewed in the IAR program and their internal classifications should be included in the minimum examination sampling coverage standards. If an unacceptable number of exceptions in classifications are found, then only assets actually reviewed by examiners should be included in calculating the examination sampling coverage.
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6. Document your conclusions regarding the reliability of the IAR program for reporting and monitoring purposes between examinations and comment in the Report of Examination (ROE), if necessary. Discuss IAR program deficiencies noted with management and initiate appropriate corrective action.
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Examination Asset Review

Homogeneous Assets (Refer to Exhibits 1 and 2 of this Section)

7. Begin with a top-down approach to review overall portfolio performance, including all significant subcategories of assets. Use electronic loan data, if available, to facilitate your portfolio evaluation and sample selection.

Select a risk-based judgemental sample of the various types of homogeneous assets. The extent that sampling of homogeneous assets is necessary is based on your assessment of the risk profile of the various loan portfolios, adequacy of an association's underwriting policies and standards, asset acquisition policies and practices, internal controls, portfolio performance, and the structure, administration, scope, and risk profile. You should sample higher risk, new loan types (or new sources), and marginal or poor performing loan segments.

8. With respect to loans made since the previous examination, determine if the association is using prudent underwriting standards and is exercising proper lending controls.

With respect to loans made in prior periods, evaluate asset quality by reviewing overall portfolio performance. If seasoned loans display performance problems, determine the cause of the problems, such as poor underwriting, high-risk loan products (such as high LTV, option ARM, and low documentation), or local economic factors, and evaluate the effect that such factors have on the association's asset quality. Be alert to permissive or poorly supervised re-aging, restructuring, deferral, or rewriting policies that may mask delinquency problems. Also, be alert to poor loan administration and collection efforts, which may give rise to higher

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delinquency in seasoned portfolios.

Sampling should be robust for higher risk assets and for associations with subprime lending programs, or when the institution originates and sells subprime assets but does not retain them. (See [CEO Memo 137](#), Expanded Guidance for Subprime Lending Programs.) If you determine that the IAR program is inadequate or fails to cover some loan types, if you have performance or underwriting concerns, or if the association has a subprime lending program, you should select a sufficient sample of homogeneous assets for review to enable you to assess the association's asset quality.

9. Review the selected sample of homogeneous loans to ascertain whether those made during the review period were underwritten in a prudent manner and in compliance with the association's policies, and are classified appropriately. For determining whether an asset is underwritten in a prudent fashion, focus on the overall quality of the asset, the documentation of the borrower's willingness and ability to repay the loan, and documentation for collateral support.

Begin by reviewing a small sample of each risk type. Document your work and your conclusions, as needed, if you plan to cite problems or deficiencies in the ROE, or based on a regional office determination that documentation of individual loan data is appropriate and necessary in a particular instance.

10. If the review of homogeneous assets reveals a level of credit risk higher than you had assessed during the sample selection phase (such as poorly underwritten loans, loans made as exceptions to stated underwriting standards, or groups of loans with documentation or performance issues), then consider expanding your sample to include additional loans within those groups.

When you note problems in the review sample, determine if the problems are systemic or not. Determine whether there is a trend and whether material noncompliance with regulation and policy has, in fact, occurred. If there is a general pattern of noncompliance with OTS and interagency policies, guidelines, and regulations, determine the frequency and extent of such noncompliance. Rather than continuing to enlarge the sample to find every exception, focus on why the exceptions are occurring and how they affect asset quality. Then you should conduct

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any additional examination procedures needed and recommend corrective action.

11. Scan records of homogeneous assets to identify unusually large assets and verify that any unusually large assets are properly designated by purpose. Include any improperly designated homogeneous assets with nonhomogeneous assets for sampling and review.

12. Review a sample of exceptions to the institution's general lending policies. For loans that differ from internal standards, focus on whether the loan was prudently underwritten, whether departures from the association's policies are justified and uniformly applied, and whether exceptions were authorized and appropriately reported to management or the board of directors.

13. Determine if additional sampling or other examination procedures are needed to determine the cause for the exceptions and the corrective action needed. If appropriate, undertake additional sampling. A large volume of exception loans subjects the institution to greater credit risk and should generally be subject to criticism in the ROE.

14. Confirm that the association's classifications of homogeneous assets is based primarily on delinquency status. Institutions should classify homogeneous loans in accordance with instructions in [Examination Handbook Section 260](#), Classification of Assets, and [CEO Memo 128](#), Uniform Retail Credit Classification and Account Management Policy.

If necessary, expand samples of any groups of assets suspected to contain material amounts of assets that may warrant classification. Review expanded samples to determine if any assets from the expanded samples should be adversely classified. Discuss classification concerns with management.

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15. If the sample review indicates possible material risk of loss in a subcategory of homogeneous assets, include that subcategory with nonhomogeneous assets for additional sampling and review.

 16. Document your conclusions regarding the underwriting and asset quality of homogeneous assets and comment in the ROE. Discuss any underwriting deficiencies noted with management and initiate appropriate corrective action.
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Perform Independent Sampling of Nonhomogeneous Assets

17. Estimate of the extent of adverse classification based on internal classifications, examiner classifications from the preceding examination, loan performance, the adequacy of lending policies and procedures and how effectively they are followed. Include both seasoned loans and loans made during the review period (because you are assessing overall asset quality and the association's ongoing internal asset review procedures).

Based on the expected condition of the assets, set an initial coverage range for the review of the entire nonhomogeneous portfolio. Where available, use electronic loan data to facilitate your portfolio evaluation and sample selection.

Sample two different populations of nonhomogeneous assets:

- First, sample loans reviewed by the association under its IAR program to determine whether the association properly reviews its assets, whether its classifications are consistent with regulatory and policy standards, and whether the IAR program is reliable for the purpose of including IAR program results in meeting minimum examination sampling coverage standards.
- The second sampling requirement is referred to as a judgmental sampling. The judgmental sample should focus on higher risk loans, new loan products, and loan types that may not be covered by the association's IAR program.

The combined samples should generally total from 20 percent to 40 percent of the aggregate portfolio value of nonhomogeneous assets, depending on the risk profile

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of the portfolio. This includes nonhomogeneous assets reviewed by the institution's IAR function if it is deemed reliable.

When severe asset quality problems are known or suspected, it may be necessary to increase the sample size even further to greater than 40 percent of total nonhomogeneous assets to adequately determine the extent of asset quality problems, the need for valuation allowances, and the effect on capital.

Review 10 percent of nonhomogeneous assets regardless of the IAR coverage. Loans you review to assess IAR adequacy may be included in this total.

When sampling risk is minimal, you may select a combined sample size of 20 percent of nonhomogeneous loans. This applies to examinations of associations that:

- Are highly rated and well capitalized.
- Have high asset quality.
- Have excellent lending standards, underwriting policies, and internal controls.
- Exhibit no material areas of concern.
- Have a history of good portfolio performance and no significant asset quality problems.
- Have not experienced rapid growth in their nonhomogeneous portfolio, introduced new products, materially changed underwriting standards, or experienced material turnover in lending personnel.

In such circumstances, the Examiner-in-Charge, in consultation with the Field Manager, will determine what sampling coverage is appropriate for the institution, depending on the risk profile of the association, the time between examinations, and the scoping objectives.

Evaluate the Internal Asset Review Program

18. Assess the structure, administration, scope, and results of the association's IAR program. The association's IAR program should be independent, staffed with experienced and well-trained personnel, and include periodic sampling of all asset types. The IAR should identify all major portfolio problems and provide an accurate

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assessment of the association's overall asset quality. The IAR program should also assess risk of loss so management may determine appropriate levels of specific and general allowances.

Review the association's documentation of its IAR programs sampling process to ensure that all asset types are adequately sampled.

Use the results of your review in conjunction with other assessment factors to evaluate the effectiveness of the association's IAR process.

If you determine that the IAR program is unacceptable due to its structure, coverage, or unreliability of findings, then proceed with the minimum examination sampling coverage. In such cases, only include the assets you review in the minimum coverage standards.

In order to initiate corrective action, discuss IAR program deficiencies with management, in the ROE, and in the meeting with the board of directors.

If you conclude that the IAR program is effective and its classifications are reliable, assets reviewed under the IAR program may be included in meeting the sampling coverage objective determined appropriate for the association during the scoping process.

Determine Sampling Methodology

19. Use a *statistical* sampling technique for review of internally reviewed nonhomogeneous assets in cases where you expect to count all assets covered by the IAR as part of the exam loan review coverage. In most cases you will use the *dollar-proportional methodology*, which works best for portfolios with a wide range of loan sizes. The dollar-proportional methodology is explained more fully under Sampling Overview.

If you do not plan to count IAR reviewed assets as part of the loan review coverage *non-statistical* methods may be used. *Dollar cut-off* is one non-statistical selection criteria that is effective at selecting the highest dollar exposure.

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Sampling of Nonhomogeneous loans not covered by the IAR

20. If the IAR program of loan reviews and monitoring does not provide adequate coverage either through individual loan reviews or some monitoring process, consider performing additional loan review or increasing your coverage to assess the level of risk in these portfolios. Use whatever selection process is most efficient in determining the level of risk inherent in the assets not covered by the IAR. The selection criteria may be judgmental and rely on certain screening criteria such as: internal risk ratings, LTV, debt service coverage, year of origination, payment record, etc.
-

Judgmental Sampling of Nonhomogeneous Assets

21. In addition to sampling assets reviewed under the association's IAR program, an independent or judgmental sample is often appropriate. If you determine that the IAR program is unacceptable due to its structure, coverage, or unreliability of findings, then conduct a judgmental sample of the association's loans.

Review a judgmental sample to:

- Evaluate loans with a high potential for unrecognized loss, e.g., nonaccrual loans, and troubled, collateral dependent assets.
- Assess the adequacy of underwriting for new or high growth lending programs.
- Review loan portfolios not adequately covered by the IAR.
- Assess credit administration practices for obtaining current financial statements, financial statement analysis and monitoring, loan modification, and updating collateral values.

Review Judgmental Sample

Review the selected sample to ascertain whether the assets were underwritten in a prudent manner, in compliance with the association's policies, and whether the association has properly classified them.

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Reviewing Previously Examined Assets

22. Limit your analysis of performing, nonclassified assets reviewed in prior examinations to a quick review of the previous examination line sheets, the asset's current performance, and new file information for indications of a material change in the condition or cash flow of the obligor or the collateral.

Update the previous examination line sheets with the current balance, performance information, and current financial data.

23. Document your conclusions regarding the underwriting and asset quality of nonhomogeneous assets and comment in the ROE. Discuss any underwriting deficiencies noted with management and initiate appropriate corrective action.
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CONCLUSION

24. Ensure that the Objectives of this Handbook Section have been met. State your findings and conclusions, as well as recommendations for any necessary corrective measures, on the appropriate work papers and ROE pages.
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EXAMINER'S SUMMARY, RECOMMENDATIONS, AND COMMENTS

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SAMPLING TERMINOLOGY

Sampling Terms

Homogeneous Assets: For purposes of this Section, homogeneous assets are one-to four-family residential real estate loans, home improvement loans, home equity loans, owner-occupied mobile home loans, amortizing residential property loans, consumer installment loans and leases, credit card balances, personal overdrafts, and loans on deposits.

Nonhomogeneous Assets: For purposes of this Section, nonhomogeneous assets are considered to be commercial real estate, commercial, and construction loans; private placement, nonrated, and below-investment-grade municipal and corporate securities; and other loans and investments (other than homogenous assets, cash, high-quality government securities and high-quality mortgage-backed securities).

Exception: (1) For purposes of sampling an IAR program, an exception occurs when the regulator's classification of an asset is one or more classifications lower than an institution's classification. "Classifications" for purposes of this Handbook Section are: Pass; Special Mention; Substandard; Doubtful; and Loss.

For assets with split classifications, where both the regulator and institution have a split classification but of differing amounts, the regulator must consider the materiality of the difference and the methodology used by the institution to determine if the difference is material. For example, if an asset is divided between Substandard and Loss, with the institution indicating a 90/10 split and the regulator indicating an 80/20 split, the regulator should review the methodology the institution used to determine the Loss amount. If the institution's methodology is acceptable, then the classification difference is not an exception.

Note: Differences in classification due to timing (e.g., where the regulator is using more current information than was available to the institution when it last reviewed an asset) should not be considered an exception (except if an institution exhibits a pattern of not considering, on a timely basis, new information). Also, no exception should be noted if the institution's classification is more conservative than the regulator's classification.

(2) For purposes of reviewing homogeneous assets, an exception is any asset not underwritten in a prudent, safe and sound fashion. For determining whether an asset is underwritten in a prudent fashion, you should focus on the overall quality of the asset, not on documentation. An exception should only be noted if it is significant.

- For a homogeneous asset that was originated or purchased by the institution since the last examination that included a review of the institution's asset portfolio, you should review the loan file and other relevant information to determine whether sound underwriting standards were followed for the asset to determine if the asset is an "exception" for purposes of this Section.
- For a homogeneous asset that was originated or purchased by the institution prior to the last examination that included a review of the institution's asset portfolio, the review should initially focus on the payment history of the asset. If the asset has generally remained current, it should

not be deemed an exception. For assets that have a history of being delinquent (i.e., 90 or more days past due), you should undertake a review of the asset to determine whether sound underwriting standards were followed when the loan was made or the asset was acquired. If sound underwriting standards were not followed, the asset should be considered an “exception” for purposes of this Section.

Note: Apply the review standards established above for newer homogeneous assets to older assets (i.e., initially undertake a file review and assess the underwriting of the asset, rather than initially focusing on the payment history) to determine if the asset is an exception.

Materiality: An item is material if its inclusion or omission would change or influence the judgment of a reasonable person. An item is immaterial if its inclusion or omission would have no effect on your analysis and the outcome of the examination and related supervision. Materiality may vary both with relative amount or quality (the amount or quality of an item compared to other items) and with relative importance (the nature of the item itself). You must use good judgment and professional expertise in determining materiality.

Random Starting Point: A random starting point is the first asset picked from a population for review. You should select the starting point so as to eliminate predictability in the sample selection. The number may be obtained from a random number table, the serial number of a dollar bill, or other appropriate source. The number denotes the first item included in the sample and the place from which the established route starts (e.g., every 29th loan). This starting point should be either less than or equal to the “interval” (either monetary or numerical), i.e., if you review every 29th loan, the starting point should be selected randomly from one of the first 29 loans.

SAMPLING METHODS

There are two types of sampling discussed in this Section: (1) systematic and (2) nonsystematic (nonstatistical or risk-focused). Both types of sampling should be used in the examination process. An example of systematic sampling is numerical interval sampling. Examples of nonsystematic techniques are minimum dollar cut-off and judgmental sampling.

More than one sampling technique is often needed when sampling nonhomogeneous assets. Usually, you will select a systematic sample—such as a numerical interval sample—and then select an additional judgmental sample of potential problem assets that were not selected in the systematic sample.

Each individual asset review must only be thorough enough to determine the particular attribute for which you are testing. When reviewing the reliability of the Internal Asset Review (IAR) program for purposes of including the results of the IAR program in meeting minimum examination sampling coverage standards, your review should focus on whether the institution's classification coincides with your classification (e.g., whether there are exceptions in the institution's internal classifications). When reviewing underwriting practices, your asset review should be of sufficient depth to ascertain the institution's application of prudent underwriting standards.

For example, a well-secured and performing loan presents a low risk of loss and usually should be analyzed only to determine the adequacy of cash flows, the borrower's capacity, the perfection of liens, and the reliability of appraisals. In contrast, loans that are nonamortizing, nonperforming, or without adequately controlled collateral present substantially more risk and require in-depth analysis to determine proper classification.

The following are descriptions of the different sampling methodologies to be used to ascertain the reliability of the IAR program (so that its results can be used to meet minimum examination sampling coverage standards for nonhomogeneous assets) and used for the evaluation of the institution's use of prudent underwriting standards (for both homogeneous and nonhomogeneous assets).

For each of these sampling techniques, the thrift's assets must be divided into pools that are similar in terms of the attribute for which you are sampling. In general, homogeneous assets will be divided into just two pools, one- to four-family residential real estate loans and consumer loans. The use of additional pools may be considered if the institution uses significantly different procedures for a particular group of loans. The definition of significantly different procedures would include such criteria as the use of separate underwriting guidelines, the establishment of separate and distinct loan departments or any other characteristic that substantially differentiates a particular group of loans from the general population.

Systematic Sampling

Dollar-Proportional Sampling

Proportional sampling is the selection of items based on the sum of their dollar amounts. With dollar-proportional sampling, select the sample by using a running total of asset amounts until a certain dollar amount (or "interval") is hit. The asset that causes the running total to at least equal the interval is

included in the sample. Start the “adding up” process from a random point on the asset list (as defined in [Appendix A](#)). A dollar-proportional sample will consist of all assets that either: (1) are larger than the selected dollar interval or (2) cause the running total of the list to exceed the dollar interval.

For purposes of sampling assets reviewed under an institution’s IAR program, a suggested material dollar interval is 3% of generally accepted accounting principles (GAAP) equity capital. Thus, for an institution with \$100 million in GAAP equity capital, \$3 million is the “interval” that triggers the inclusion of an asset in the sample.

Example: For a thrift with GAAP equity capital of \$100 million, the dollar interval is 3%, or \$3 million. From a random start on the list of assets, start adding the dollar amounts of the assets, moving down the list. When an asset causes the running total to meet or exceed the dollar interval (\$3 million in this example), you should select that asset for review. Then, “add up” asset amounts until \$3 million is reached again and include the asset that makes the running total equal or exceed \$3 million in the sample. Asset amounts may be rounded or truncated to eliminate immaterial amounts for easier adding. For example, a \$1,234,567 asset may be rounded to \$1,235,000.

Continue adding assets down the list and select the asset that causes the total to meet or exceed \$3 million. Using this example, all individual assets with a book value in excess of \$3 million will always be selected for the sample. Further, a selection of smaller assets that cause the running total to meet or exceed \$3 million will be selected to be tested.

Dollar-proportional sampling method counts dollar amounts of assets relative to the interval size rather than number of assets.

Note: This method, with some minor differences, may also be used instead of the minimum cut-off method to independently sample nonhomogenous assets.

Nonsystematic or Risk-Focused Sampling

There are two types of nonsystematic or risk-focused sampling discussed in this Appendix: minimum cut-off sampling and judgmental sampling.

Minimum Cut-Off Sampling

Minimum cut-off sampling is an efficient method to analyze nonhomogeneous assets to help determine the thrift’s risk of loss. This sampling method selects all assets with a balance (or commitment) equal to or greater than a cut-off amount. [Exhibit 1 of this Appendix](#) shows the basic steps to select the assets to be reviewed in minimum cut-off sampling. This sampling methodology can be used to review the underwriting standards used by an institution for its nonhomogeneous assets.

Judgmental Selection

Judgmental selection is used to: (1) sample nonhomogeneous assets that have a greater than normal probability of being adversely classified and (2) expand a systematic sample for homogeneous assets if significant subcategories of assets are not covered by the sample.

For nonhomogeneous assets, [Exhibit 2 of this Appendix](#) lists asset groups that may have greater than normal risk of material loss. When selecting assets to review for material risk of loss, your professional judgment is more important than strict adherence to general procedures and coverage standards. For this reason, judgmental sampling should be used to supplement systematic sampling.

Judgmental sampling may also be used to supplement systematic samples during your review of the institution's IAR program or of systematic sampling of the underwriting of homogeneous assets. For example, you may judgmentally select assets that were not selected in a numerical interval sample of the internally reviewed assets. Also, if an asset is selected for review from a sample and the borrower has multiple credits with the institution, you should use your judgment as to whether to include the entire set of related credits in the sample. For example, if you believe that reviewing all the associated credits will enhance his/her ability to assess whether the initially selected asset is a safe and sound asset, you should include the associated credits.

If a review of judgmentally selected assets reveals problems, additional judgmental sampling can help pinpoint causes and help devise solutions. For example, you may determine that underwriting exceptions or adverse classifications are attributable to one branch office or a single time period. Additional sampling, concentrating on the affected assets, might disclose that the problems are attributable to a single loan officer or broker, or to substitute employees performing unfamiliar duties.

Exhibit 1
Minimum Cut-Off Sampling

- Determine the approximate book value of the nonhomogeneous assets in the portfolio. This can be done with internal management reports or a Thrift Financial Report.
- Set a target range for the percent of that book value to be reviewed. For a portfolio with no indication of serious problems, the initial range for the minimum cut-off and judgmental samples combined would be 30% to 50% of the dollar volume of nonhomogeneous assets.
- Select a cut-off for the dollar value of the balances of assets to be reviewed. A good starting point might be 0.25% of total assets or 2.5% of the thrift's GAAP equity capital, rounded to a convenient number. Select all assets at and above the dollar cut-off in the population being sampled.
- Calculate the percentage dollar volume selected. If the percent selected is significantly different from the target percent, adjust the cut-off so that the percent selected falls within the target range. The assets selected should be reviewed and recorded on Asset Review line sheets.

Note: Dollar-proportional sampling may be used to independently sample nonhomogeneous assets instead of the minimum cut-off method since it also selects assets with individual book values over a certain material dollar interval/amount (as well as smaller assets). This method is particularly useful for portfolios with an extreme variance in dollar amounts or that cannot be divided between homogeneous and nonhomogeneous assets.

The dollar-proportional sampling procedures for testing the underwriting of nonhomogeneous assets (the "independent sample") are similar to the dollar-proportional sampling procedures for testing the institution's IAR program. A key difference is that the dollar interval is usually not the same, since the purposes for these two examination procedures are different. For independent sampling of nonhomogeneous assets, a starting point for the material dollar interval might be 0.25% of total assets or 2.5% of the thrift's equity capital, rounded to a convenient number.

When using this technique to sample nonhomogeneous assets, you should supplement the dollar-proportional procedures discussed earlier in this Appendix with the following:

- Determine the total book value of the nonhomogeneous assets in the portfolio.
- Set a target range for the percent of that book value to be reviewed.
- Select the assets using the process described earlier and determine the percentage dollar volume selected.
- If the sample is too large or too small, either decrease the sample size by eliminating some smaller assets or increase the sample size by lowering the minimum cut-off. (This is far more efficient than rerunning the dollar proportional selection.)
- When the sample is within the target range, review and record pertinent information on each sampled asset on individual Asset Review line sheets.

Exhibit 2
Asset Groups with High Risk of Material Loss

Troubled assets, including assets:

- With principal or interest past due for 30 days or more;
- Renewed without interest collection;
- With extended maturities or due dates;
- With significant capitalized interest;
- That are restructured troubled debts; or
- In nonaccrual status.

Loans identified as problems, including loans:

- Previously classified by examiners;
- Internally classified;
- On the thrift's problem list or watch list; or
- Identified in director or committee minutes, audits, or other sources, as having more than normal risk.

Loans to borrowers in groups who present special risk, including loans to:

- Insiders (officers, directors, stockholders);
- Insiders of other financial institutions;
- Related interests of insiders;
- Entities with classified loans elsewhere;
- Customers with overdrafts or cash items; or
- Guarantors and principals of commercial borrowers.

Loans with collateral or repayment sources presenting special risk, including loans:

- In specific high-risk markets (e.g., commercial construction, land speculation and development, leveraged buy-outs, new enterprises, commercial fishing, farming, extraction industries, restaurants, and dealers in mobile homes, new and used cars, home appliances, or farm implements); or
- Out-of-territory.

Participations that are:

- Purchased (both nonhomogeneous assets and portfolios of homogeneous loans); or
- Sold with recourse.

Other assets with special risks, including:

- Loans to facilitate sale of real estate owned;
- Risky concentrations of assets;
- Nonaccrual investments;
- Real estate owned or in judgment;
- Defaulted debt securities; or
- Assets not confirmed by auditors attempting positive confirmations.