

## Safety and Soundness

Capital  
Adequacy  
(C)

Asset  
Quality  
(A)

Management  
(M)

Earnings  
(E)

Liquidity  
(L)

Sensitivity to  
Market Risk  
(S)

Other  
Activities  
(O)

# Concentrations of Credit

Version 2.0, October 2020

**References to reputation risk have been removed from this booklet as of March 20, 2025. Removal of reputation risk references is identified by a strikethrough. Refer to OCC Bulletin 2025-4.**

# Contents

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<b>Introduction.....</b>	<b>1</b>
Risks Associated With Concentrations of Credit.....	2
Risk Management .....	4
Governance .....	4
Pools of Transactions With Similar Characteristics .....	5
Identifying Concentrations.....	6
Correlation of Pools .....	9
Stress Testing.....	10
Mitigating Concentration Risk.....	11
Management Information Systems .....	12
Conclusion .....	13
<b>Examination Procedures .....</b>	<b>14</b>
Scope.....	14
Quantity of Risk.....	16
Quality of Risk Management.....	18
Conclusions.....	22
Internal Control Questionnaire .....	24
<b>Appendix .....</b>	<b>26</b>
Appendix A: Abbreviations .....	26
<b>References.....</b>	<b>27</b>

# Introduction

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The Office of the Comptroller of the Currency’s (OCC) *Comptroller’s Handbook* booklet, “Concentrations of Credit,” is prepared for use by OCC examiners in connection with their examination and supervision of national banks, federal savings associations (FSA), and federal branches and agencies of foreign banking organizations (collectively, banks). Each bank is different and may present specific issues. Accordingly, examiners should apply the information in this booklet consistent with each bank’s individual circumstances. When it is necessary to distinguish between them, national banks, FSAs, and covered savings associations (CSA) are referred to separately.<sup>1</sup>

This booklet discusses risks associated with concentrations of credit and sound concentration risk management processes.<sup>2</sup> Examiners should consider conclusions about concentration risk management when assigning capital, asset quality, liquidity, and management component ratings. The primary source of revenue for most banks is extending credit, an activity that concurrently poses risk to earnings and capital. A bank’s level of credit risk, when appropriately identified, measured, monitored, and controlled, benefits shareholders, customers, and the communities served. Weak credit risk management is a leading cause of bank failures, which can result in investment losses, losses to the deposit insurance fund, business disruption, increased costs, and reduced service to the communities served.

The accurate identification of a borrower’s credit risk and the assignment of an appropriate risk rating that describes that risk are at the heart of an effective credit risk management process. But credit risk management does not conclude with the supervision of individual transactions. It also encompasses the management of concentrations, or common pools of exposures, whose collective performance has the potential to affect a bank negatively even if each individual transaction within a pool is soundly underwritten. When exposures in a pool have a common characteristic or sensitivity to the same economic, financial, or business development, that characteristic or sensitivity, if triggered, may cause the sum of the transactions to perform or react similarly.

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<sup>1</sup> Generally, references to “national banks” throughout this booklet also apply to federal branches and agencies of foreign banking organizations unless otherwise specified. A concentration of credit in a federal branch or agency is not measured against capital as it is in a bank. Instead, examiners judgmentally determine the extent to which certain types of assets materially raise the risk profile of the branch or agency. Refer to the “Federal Branches and Agencies Supervision” booklet of the *Comptroller’s Handbook* for more information regarding applicability of laws, regulations, and guidance to federal branches and agencies. Additionally, certain FSAs may make an election to operate as a CSA. For more information, refer to OCC Bulletin 2019-31, “Covered Savings Associations Implementation: Covered Savings Associations,” and 12 CFR 101, “Covered Savings Associations.”

<sup>2</sup> Concentration of credit risk is addressed by the safety and soundness standards in 12 CFR 30, appendix A, “Interagency Guidelines Establishing Standards for Safety and Soundness.” Specifically, a bank should establish and maintain prudent credit underwriting practices that take adequate account of concentration of credit risk. A bank should also consider the size and potential risks of material asset concentrations when establishing and maintaining systems to identify and prevent problem assets. Refer to 12 CFR 30, Appendix A, II.D, “Credit Underwriting,” and II.G, “Asset Quality.”

A concentration is defined as the sum of direct, indirect, or contingent obligations exceeding 25 percent of the bank's tier 1 capital plus the allowance for loan and lease losses (ALLL) or allowance for credit losses (ACL), as applicable.<sup>3</sup> This booklet discusses identifying exposures that constitute concentrations of credit.

## Risks Associated With Concentrations of Credit

From a supervisory perspective, risk is the potential that events will have an adverse effect on a bank's current or projected financial condition<sup>4</sup> and resilience.<sup>5</sup> The OCC has defined eight categories of risk for bank supervision purposes: credit, interest rate, liquidity, price, operational, compliance, strategic, and reputation. These categories are not mutually exclusive. Any product or service may expose a bank to multiple risks. Risks also may be interdependent and may be positively or negatively correlated. Examiners should be aware of and assess this interdependence. Examiners also should be alert to concentrations that can significantly elevate risk. Concentrations can accumulate within and across products, business lines, geographic areas, countries, and legal entities. Refer to the "Bank Supervision Process" booklet of the *Comptroller's Handbook* for an expanded discussion of banking risks and their definitions.

Excessive concentrations of credit have been key factors in banking crises and failures. Accordingly, this booklet emphasizes the importance for bank management to establish processes to identify, measure, monitor, and control concentrations of credit. Sound processes generally consider and incorporate credit exposures that can originate outside of the bank's lending portfolio, including those arising from the bank's investment and trading portfolios and off-balance-sheet transactions. A central lesson learned from past financial crises is that concentrations can accumulate across products, business lines, countries, and legal entities within a banking company. Products containing the same types of risks under different names and in different units, such as structured products and off-balance-sheet funding structures, can mask some exposures and risks.

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<sup>3</sup> Refer to OCC Bulletin 2020-29, "Credit Concentrations: Joint Statement on Adjustment to the Calculation for Credit Concentration Ratios Used in the Supervisory Approach." For a bank that has adopted the 2019 or 2020 current expected credit losses methodology capital transition rule (refer to 12 CFR 3.301), a portion of the ACL may be included as a component of tier 1 capital for the years that the bank reports its regulatory capital ratios using the allowable capital relief provided by those rules. To eliminate potential double counting of the ACL in the denominator for purposes of measuring concentrations, the amount of the ACL included as a component of tier 1 capital during the period when a bank reported regulatory capital ratios using the 2019 or 2020 current expected credit losses methodology capital transition rule should be subtracted from tier 1 capital. The amount to be subtracted from tier 1 capital is calculated as the difference between retained earnings on Schedule RC, "Balance Sheet," (line 26a) and retained earnings on Schedule RC-R, part 1, "Regulatory Capital Components and Ratios," (line 2) of the Consolidated Reports of Condition and Income (call report). Refer to the "Federal Branches and Agencies Supervision" booklet for more information identifying concentrations within federal branches and agencies.

<sup>4</sup> Financial condition includes impacts from diminished capital and liquidity. Capital in this context includes potential impacts from losses, reduced earnings, and market value of equity.

<sup>5</sup> Resilience recognizes the bank's ability to withstand periods of stress.

This booklet focuses on concentrations of credit, but effectively managing other types of concentrations is also important. Examples of non-credit concentrations include elevated interest rate risk due to maturity concentrations; liquidity risk due to funding concentrations; or operational risks associated with concentrations of certain lines of business, such as mortgage servicing.<sup>6</sup> Credit concentrations are often the most material concentration risk in a bank because lending is the primary activity for most banks.

Supervisors have long recognized that a large credit risk exposure to a single borrower or group of related borrowers, when measured as a percentage of capital, poses a potential threat to a bank's safety and soundness, and regulation imposes a limit on such exposures for that reason.<sup>7</sup> Because of that limitation, individual transactions rarely cause material losses or bank failures. Rather, pools of individual transactions that may perform similarly because of a common characteristic or common sensitivity to economic, financial, or business developments have been the primary cause of credit-related distress if the common characteristic or sensitivity becomes a common source of weakness, loans in the pool could pose considerable risk to earnings and capital. This statement is true even when each transaction within a pool is soundly underwritten.

Because a concentration of credit tends to perform or react similarly, concentrations have the potential to pose risk to earnings and capital. Depending on how broadly a bank defines its common pools of credit exposures, nearly every bank has concentrations in its credit portfolio. Before the 2008 financial crisis, concentrations of commercial real estate (CRE) loans, energy loans, leveraged financing loans, collateralized debt obligations, counterparty credit, loans to emerging market countries, loan participations, and agricultural loans played major roles in the failure or material weaknesses of a large number of banks. Other credit concentrations, such as loans secured by first liens on residential real estate, have historically posed fewer problems. However, during the recession beginning in 2008, the banking industry experienced significant losses in these exposures when the national housing market suffered broad declines in home values. This experience indicates that although a concentration has not proven problematic in the past, that does not preclude it from becoming a problem in the future. Therefore, monitoring and assessing the potential risk arising from all of the bank's credit concentrations is important regardless of past performance.

In many instances, concentrated exposures were booked during periods of rapid economic expansion that were typically fueled in part by bank credit and frequently included a

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<sup>6</sup> Refer to the "Interest Rate Risk," "Liquidity," and "Mortgage Banking" booklets of the *Comptroller's Handbook* for more information on managing these risks.

<sup>7</sup> Refer to 12 CFR 32, "Lending Limits" (national banks and FSAs); 12 USC 84, "Lending Limits" (national banks and CSAs); and 12 USC 1464(u), "Limits on Loans to One Borrower" (FSAs). FSAs are also subject to minimum thresholds and maximum limits on their holdings of some categories of assets and loans. For example, the qualified thrift lender test requires a minimum of 65 percent of portfolio assets be invested in qualified thrift investments. Refer to 12 USC 1467a(m), "Qualified Thrift Lender Test," for more information. Further, an FSA's loans or investments are limited to 20 percent of their assets in commercial loans, with amounts over 10 percent required to be in small business loans, 10 percent of their assets in leases secured by personal property, and 35 percent of their assets in consumer loans. Moreover, FSAs are limited to 400 percent of their capital in nonresidential real estate loans. Refer to 12 USC 1464(c) and 12 CFR 160 for more information.

weakening of underwriting standards. At some banks, management did not fully understand how these exposures would perform under stressed economic conditions and therefore did not implement risk mitigation strategies before the financial crisis beginning in 2008. During the economic downturn, many correlated credit exposures deteriorated, resulting in a significant number of banking problems, including failures.

## Risk Management

Each bank should identify, measure, monitor, and control risk by implementing an effective risk management system appropriate for the size and complexity of its operations. When examiners assess the effectiveness of a bank's risk management system, they consider the bank's policies, processes, personnel, and control systems. Refer to the "Corporate and Risk Governance" booklet of the *Comptroller's Handbook* for an expanded discussion of risk management.

## Governance

The OCC expects a bank to implement policies and processes appropriate to the size and complexity of the bank's portfolios. These processes, coupled with risk management, loan review, and audit oversight, should form an internal governance function that effectively identifies, measures, monitors, and controls concentration risks to the bank both as a legal entity and on a consolidated basis. Processes should consider the potential impact of known and potential concentrations on the bank's earnings, capital, and operations under normal and stressed market conditions, such as economic downturns and periods of general market illiquidity. The results of such analyses should be important considerations in the bank's ALLL or ACL, as appropriate, and capital and liquidity planning processes. Results should be taken into consideration as part of the board's action to approve the bank's risk appetite and limits.

Sound board oversight of concentrations includes reviewing an analysis of the risk posed by these common pools and their potential effect on the bank's asset quality, earnings, capital, and liquidity. The OCC expects banks with significant credit concentrations to maintain capital levels substantially above regulatory minimums to help mitigate the risk. There also may be cases in which the potential risk to capital is so severe that reduction of the concentration is the most effective risk mitigation action. In the "Concentrations" section of the report of examination (ROE), examiners should note concentrations that either pose a challenge to management or present unusual or significant risk to the bank. Examiners should use matters requiring attention (MRA) to communicate the OCC's concern with deficient practices, which could include deficient concentration risk management, or an excessive concentration level.

## Pools of Transactions With Similar Characteristics

The OCC categorizes pools of transactions that may perform similarly (i.e., whose performance is positively correlated) as those that include credit exposures that are

- extended to any one counterparty, borrower, or group of related counterparties or borrowers.
- dependent on the same source of repayment (including guarantors).
- extended to independent borrowers who sell the same manufacturer's product.
- extended to an industry or to economic sectors.<sup>8</sup>
- purchased from a single source.
- secured by a common debt or equity instrument.
- extended to other financial institutions, such as due from accounts, federal funds sold, investments, net current exposure of derivatives contracts, and direct or indirect loans.
- originated within the same geographic area that might also be dominated by one or a few business enterprises or could be affected by the same natural disaster.
- owed by a foreign government or related entities.<sup>9</sup>

Industry practitioners and supervisors refined this framework over time to include many other sources of concentrations. Some of the primary sources include

- retail products, such as credit cards, home equity lines of credit (HELOC), home equity loans, residential first mortgages, auto loans, boat loans, airplane loans, and manufactured housing loans. In these cases, product features (e.g., target market, purpose, documentation, underwriting criteria, or repayment expectations) constitute the common characteristics and sensitivities of the loans. These pools may be further segmented by
  - whether they are direct or indirect.
  - their vintage, particularly when underwriting was changed or new product features were introduced.
  - geography.
  - their credit scores.
  - their loan-to-value (LTV) ratios, particularly for mortgage-related credit.
- commercial products, including leveraged financing loans and project finance. These pools may be further segmented by industry, geography, and deal sponsor.
- indirect exposure to specific asset types through investments backed by such assets (e.g., collateralized debt obligations) as well as exposure to protection providers guaranteeing the performance of specific asset types.

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<sup>8</sup> Usually identified by the North American Industry Classification System (NAICS) codes. Refer to [www.census.gov](http://www.census.gov) for a complete listing of NAICS codes.

<sup>9</sup> Refer to the “Country Risk Management” booklet of the *Comptroller's Handbook* for more information.

- CRE (including construction and development),<sup>10</sup> which may be incorporated into both an industry and a commercial product analysis. CRE merits explicit mention because of its historical volatility and its role in a disproportionate number of bank failures. Banks may view CRE as a product, which would include all transactions secured by commercial real estate. Alternatively, banks may also take an “industry” view, which would include transactions for which the primary source of repayment is sale or refinancing of CRE or collection of lease/rental payments. A CRE pool may be further segmented by other characteristics, such as
  - property type.
  - geography.
  - sponsor.
  - tenant concentrations (listed by name of tenant or by industry).
  - risk rating.
  - credit structure (e.g., fixed versus variable interest rate).
  - debt service coverage.
  - LTV ratio.

Concentrations also can arise through a combination of exposures across these broad categories, and there can be bank-wide concentrations resulting from similar exposures across its different business lines. For example, it could be prudent for a bank involved in residential mortgage activities to aggregate exposures from its loan portfolio, investment portfolio, derivatives counterparties, conduits, contractual and non-contractual commitments, trading activities, and warehouse pipelines.

It is important to consider off-balance-sheet exposures, including guarantees, liquidity lines, and other commitments when measuring concentrations. A single transaction may appear in more than one pool. For example, an individual’s open-end revolving account might appear in a retail product category (e.g., credit card or HELOC) as well as in a geographic concentration. A European-based power plant transaction might simultaneously be included in pools defined by project finance, the utilities industry, and a foreign country. Concentration measurement is important because a single exposure can perform like exposures in other apparently unrelated pools. The key risk management objective is to identify pools of transactions that may perform or react similarly.

## Identifying Concentrations

A “concentration” is defined as the sum of direct, indirect, or contingent obligations exceeding 25 percent of the bank’s tier 1 capital plus the ALLL or ACL, as applicable.<sup>11</sup> Obligations include the bank-wide aggregate (across all lines of business) of all types of loans; overdrafts; cash items; securities purchases outright or under resale agreements; sale of federal funds; suspense assets; leases; acceptances; letters of credit; placements; loans

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<sup>10</sup> Refer to OCC Bulletin 2006-46, “Concentrations in Commercial Real Estate Lending, Sound Risk Management Practices: Interagency Guidance on CRE Concentration Risk Management.”

<sup>11</sup> For banks that have implemented the CECL methodology capital transition rule (12 CFR 3.301), refer to OCC Bulletin 2020-29 and footnote 3 of this booklet.

endorsed, guaranteed, or subject to repurchase agreements; credit exposure from derivatives transactions; and any other actual or contingent liabilities. The “obligation” (i.e., the amount of exposure) may include the committed or outstanding amount, depending on the concentration’s characteristics. For example, using outstanding amounts could be useful for a credit card portfolio, but commitments might better capture the risk of a portfolio of HELOCs or agricultural production loans. For derivative contracts with a counterparty, the credit exposure would be the net current market value of the portfolio of contracts, plus a conservative measure of the potential future exposure of that portfolio.

The underlying performance volatility of the concentration is an important consideration when identifying concentrations. Depending on how narrowly or broadly a bank defines a concentration pool and the risk characteristics of that pool, a large measured concentration may not necessarily point to a similarly large threat to earnings and capital. Some pools that meet the regulatory definition of a concentration may warrant relatively little attention, while other small pools may merit a significant amount of scrutiny, ongoing monitoring, and execution of risk mitigation strategies.

Not all concentrations pose the same level of risk. Various factors should be considered when assessing the risks posed by concentrations, including management’s ability to identify, measure, monitor, and control concentration risk. For example, a concentration of geographically diversified and soundly underwritten conventional, residential first mortgages equal to a modest percentage of a bank’s capital would generally yield predictable delinquencies and losses. The default correlations of this portfolio would usually be manageable because of sound underwriting expectations and robust portfolio management practices supported by a diversified portfolio. Although the level of problem assets would not be perfectly stable over time, the portfolio’s performance metrics (e.g., special mention and classified assets, past dues, and net losses) would likely remain within a reasonably narrow range. On the other hand, a geographically concentrated pool of construction and development loans heavily focused in a single property type and equal to a much smaller percentage of capital might be relatively unpredictable, with performance metrics falling within a wide range. During periods of economic stability, the construction and development portfolio might not reflect deteriorating performance metrics. However, during periods of stress, the performance metrics might spike and yield losses comparable to the larger but more diversified and soundly underwritten portfolio concentrated in conventional residential first mortgages.

Portfolio size and performance volatility are both important variables. The difference in performance metrics between normal economic times and stressful times may vary widely and is a direct measure of risk. Generally, the greater the difference in portfolio metrics between normal and stressful times, considered in conjunction with portfolio size, the greater the risk of that portfolio, warranting more management attention and additional capital. Accordingly, a bank engaged in prudent concentration risk management typically allocates its portfolio risk management resources according to the risk that each pool represents rather than solely according to a pool’s size. Similarly, thresholds or limits should be set by fully considering the defined pool’s risk characteristics. For very broadly defined pools such as CRE, the concentration limits would necessarily be higher than for more narrowly defined

subsegments such as acquisition, development, and construction loans. When a bank sets higher concentration limits for broadly defined pools—especially when those limits are more than 100 percent of capital—sound concentration risk management typically includes setting appropriate sublimits for material groups of segmented exposures.

To focus management attention on portfolios of greater risk and rank concentration exposures by risk, it is important to estimate potential losses for the pools. Such loss estimates might be based on a combination of historical loss ranges, economic projections, stress testing results, and management judgment. The objective would be to identify loan pools whose individual or collective performance might reasonably exceed established internal limits. Such limits might include estimated loan losses that

- are equal to a certain percentage of earnings.
- would reduce the ALLL or ACL, as applicable, by a certain percentage.
- are equal to a certain percentage of capital or would move the bank to a lower capital category under 12 CFR 6, “Prompt Corrective Action.”
- would force the bank to cut or suspend its dividend.
- would cause a downgrade in the bank’s credit rating (e.g., ratings provided by Moody’s Investors Service or Standard & Poor’s) that could increase the cost of funds, ~~damage reputation~~, or limit strategic opportunities.

Banks often combine a size limit of less than 25 percent of capital with a credit risk benchmark in order to identify pools that merit heightened scrutiny and monitoring. For example, a bank might choose to define a concentration as any pool with exposure greater than a certain percentage of capital (e.g., 10 percent, 15 percent, or 20 percent) that exhibits a level of special mention or classified loans exceeding a certain percentage of the pool’s total exposure (a static measure).

Alternatively, a bank could augment such a definition with one that uses changes in credit risk benchmark levels (dynamic measures), which might provide an earlier warning of increasing risk. One example might be any pool with exposure greater than a certain percentage of capital exhibiting a level of special mention or classified loans growing above a specified rate.

As with pools, it is difficult to list all of the possible credit risk benchmarks, but some of the more common include

- special mention and classified levels or percentages (or components of them).
- the net loss rate.
- the nonaccrual or nonperforming rate.
- the delinquency or roll rate.
- the growth rate in commitments or outstanding amounts.
- the risk rating distribution (typically implemented to monitor the proportion of the portfolio in the higher-risk pass rating grades).

- the weighted-average risk grade or credit score.<sup>12</sup>
- the weighted-average probability of default (PD).<sup>13</sup>
- the expected and unexpected loss.
- the required capital allocation (capital intensity).<sup>14</sup>

The OCC uses an industry taxonomy that assigns North American Industry Classification System (NAICS) codes to report concentrations in the “Concentrations” section of a bank’s report of examination (ROE). The level of granularity examiners use depends on the bank’s unique characteristics. Examiners may also identify concentrations in the ROE that do not correspond to specific NAICS codes when circumstances warrant.<sup>15</sup>

## Correlation of Pools

Once bank management identifies concentrations, or common pools of exposures, with a common characteristic or sensitivity to the same economic, financial, or business development that may cause the sum of the transactions to perform or react similarly, bank management next considers whether some of those individual concentrations might behave similarly. The identification of correlated pools of exposure is an extremely important, but difficult, part of managing credit concentration risk. Two pools that do not exhibit strong performance correlation (i.e., similar credit performance metrics) in a benign economic environment may show very strong correlation in a deteriorating environment. For example, many banks assumed that individual pools of residential mortgages, each representing a different geographic area, would not be highly correlated. While this was a reasonable assumption during a benign economic environment, the performance of these pools became highly correlated when home prices declined broadly throughout the country. Experience and judgment combined with available data play important roles in helping banks identify pools that might perform similarly in stressed economic conditions.

Management typically reviews all of the bank’s large or risky pools for correlations. While the list of all such combinations is potentially long, it is important to determine if there might be a performance correlation between two or more common pools of exposures.

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<sup>12</sup> Calculated by multiplying the commitment (or utilized) amount in each risk grade by that risk grade’s numeric equivalent, summing the results across all grades, and dividing by total commitments (or total utilizations).

<sup>13</sup> While no uniformly accepted definition of “PD” exists, the concept generally incorporates recognition that full repayment of principal and interest by a borrower is in doubt. For Basel II purposes, a retail default is defined by product type and delinquency status, and a wholesale default is defined by the likelihood that principal and interest (without considering recourse to collateral) will not be fully repaid or delinquency status if 90 days or more past due. While the time horizon may theoretically include any period during a credit’s contractual life, it is most typically quoted with a 12-month horizon. The calculation is the same as for weighted-average risk grade, except that the PD assigned to each risk grade is substituted for the risk grade’s numeric equivalent.

<sup>14</sup> “Capital intensity” is typically defined as dollars of economic capital per dollar of committed (or utilized) exposure.

<sup>15</sup> Refer to [www.census.gov](http://www.census.gov) for a complete list of NAICS codes.

Similarly, correlation analysis may consider whether distinct groups of loans that do not constitute a concentration might behave similarly. Suppose, for example, that a bank has exposure to two different industries (e.g., air transportation and hotels), and each was equal to 15 percent of capital. Although neither group of transactions might be designated as a concentration initially, if a downturn in the demand for passenger air service occurred, the hotel business probably would suffer as well. Both groups of exposures would exhibit common performance characteristics and, at a combined 30 percent of capital, may warrant scrutiny.

Depending on the industry groups defined by a bank, a positive correlation may also exist between industries in the same supply chain. The bank may distinctly identify auto manufacturing and fabricated metal product manufacturing within its industry structure. To the extent that borrowers within the fabricated metal product manufacturing industry sell to auto manufacturers, a downturn in auto sales would negatively affect the performance of both industries.

## Stress Testing

Stress testing is an effective tool for identifying correlated pools of loans. Stress testing can be used to quantify the potential impact from different scenarios on concentrations and correlations, and the overall goal is to quantify loss potential and the potential impact on earnings and capital adequacy. To perform stress testing, a bank alters assumptions about one or more financial or economic variables to determine the potential effects on portfolio performance. These variables might include unemployment rates, interest rates, commodity prices, market rents, vacancy rates, real estate values, or any other variable important to the performance of that type of credit. Bank management can then review the results of those stress tests to identify potential correlations and determine potential responses to changes in market conditions that could adversely affect the bank's condition. While banks with large and complex portfolios may use sophisticated financial models, banks with less complex portfolios can use less sophisticated techniques. It is critical to ask the "what if" questions and incorporate the answers into the risk management process. Stress tests can reveal the kinds of events that might present problems.

Lenders may conduct less complex stress tests by evaluating borrower "what-if scenarios" using little technical support. As part of the initial and ongoing credit analysis, a bank can alter assumptions to assess the impact on the borrower on a loan-by-loan basis. The lender can then aggregate the results at the portfolio and bank-wide levels. At a small, less complex bank, management often can review a limited number of the largest credits or use statistical techniques to extrapolate results across a portfolio. For example, the lender could alter assumptions about office space rental rates. This would permit the bank to determine at what rental rate a project could no longer service its debt. The lender could then aggregate the results across the portfolio to identify what percentage of the portfolio would be vulnerable to a 10 percent decrease in rental rates.

The nature and extent of a bank's stress testing generally evolves over time. For example, as bank management's knowledge of stress testing grows, management may strive to make the

analysis more robust by simultaneously stressing a number of related variables. Banks of all sizes benefit by supplementing stress testing of significant individual loans with portfolio and bank-wide stress testing.<sup>16</sup>

## Mitigating Concentration Risk

Not all concentrations represent the same level of risk or necessitate the same level of supervision. In some cases, a pool of loans may represent a concentration of risk that is difficult to avoid or mitigate. For example, small banks may accumulate concentrations because of their more limited geographic markets and the nature of their local economies. Additionally, FSAs are required to hold a portion of their portfolios in certain housing-related categories, which typically creates concentrations.<sup>17</sup> Banks may develop concentrations through mergers, or concentrations may develop as the result of implementing a strategic plan. Bank management typically decides whether mitigation is desirable for a particular pool of loans. At some point, a credit concentration can become so large that, if the common factor influencing the pool deteriorates sufficiently, even a portfolio of well underwritten loans can suffer losses that can deplete banks' capital.

There are many useful strategies for managing concentration risk. Some are incremental, such as reducing risk over a relatively long horizon, while others have a more immediate impact. These strategies include

- modifying underwriting standards to increase exposure to higher-quality transactions or to diminish exposure to weaker or higher-risk borrowers. Concurrently, management can increase the level of credit supervision while executing exit strategies from lower-quality relationships (e.g., increasing pricing or tightening terms and conditions).
- diversifying and expanding the portfolio by booking transactions that are not likely to perform in a similar manner with the existing portfolio. For example, a decline in the price of natural gas might affect borrowers in the oil and gas production industry negatively but would have the opposite effect on borrowers in the chemical manufacturing industry. Similarly, an increase in the price of steel might boost the prospects of many companies in the primary metal manufacturing industry while pressuring those in fabricated metal product manufacturing (if the ability to pass through the price increase was constrained). Additionally, there are industries that are known to be relatively immune to changes in the economic cycle (for example, the relatively strong performance of consumer staple funds or stocks, i.e., assets comprising companies that produce and sell items essential for everyday use regardless of the state of the economy). These assets are generally less risky and less volatile compared with alternative investments (e.g., information technology) in a weaker economic environment.
- altering exposure limits or credit risk benchmarks, such as adjusting limits on commitment or outstanding amounts, or tightening constraints on special mention, substandard, doubtful, or nonperforming levels.

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<sup>16</sup> Some banks use credit modeling software. For model risk management considerations, refer to OCC Bulletin 2011-12, "Sound Practices for Model Risk Management: Supervisory Guidance on Model Risk Management."

<sup>17</sup> Refer to 12 USC 1467a(m).

- obtaining insurance or guarantees (e.g., from the Export-Import Bank of the United States, the U.S. Department of Agriculture Farm Service Agency, the Commodity Credit Corporation, the Federal Housing Administration, or the U.S. Small Business Administration).
- selling loan participations, or whole-loan sales on a nonrecourse basis, to reduce exposures.
- holding additional capital to compensate for the additional risk that may be associated with a concentration exposure.
- buying credit derivative protection (e.g., default or total return swaps on individual transactions or a pool).

## Management Information Systems

Accurate reporting is important for sound concentration risk management. Accurate reports support an active and timely dialogue with the board and senior management regarding concentration exposures. The ability to correctly identify pools of transactions with similar characteristics and to associate them with various risk metrics on a timely basis depends on the quality and scope of a bank's management information systems (MIS).<sup>18</sup>

The accurate and timely capture of data is of paramount importance and applies to any MIS, regardless of the complexity of a bank's portfolio.<sup>19</sup> MIS are of little use if significant deficiencies in data quality exist or if data capture is performed with a material time lag. MIS that produce inaccurate reporting can provide a false sense of security and erroneously focus attention on lower-risk pools. Clear lines of responsibility for data quality are important for maintaining the integrity of concentrations data.

While quality data are the foundation of MIS, the scope of data elements captured should be proportional to the portfolio's diversity and risk profile. Small banks with geographically concentrated portfolios spread across few products likely have a few large concentrations and should focus data capture on those products. The MIS of large, more complex, and globally diversified banks necessarily capture a more extensive set of data elements across more products.

MIS and reporting should be accurate and timely with a scope commensurate to the portfolio's diversity and risk profile. Sound risk management typically includes credit risk review, credit administration, or an audit periodically reviewing MIS credit data and reports to confirm the adequacy of the quality, scope, and timeliness.

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<sup>18</sup> Refer to the "Corporate and Risk Governance" booklet of the *Comptroller's Handbook* for more information regarding MIS.

<sup>19</sup> The Interagency Guidelines Establishing Standards for Safety and Soundness provide that a bank should have internal controls and information systems appropriate to the size of the bank and the nature, scope, and risk of its activities. Controls and systems should provide for timely and accurate financial, operational, and regulatory reports. Refer to 12 CFR 30, appendix A, II.A, "Internal Controls and Information Systems."

## Conclusion

All banks likely have credit concentrations. In some cases, this is by choice, as the bank seeks to develop expertise in a particular segment. In other cases, concentrations may be the result of mergers or acquisitions. Alternatively, credit concentrations may be unavoidable due to a bank's limited geographic footprint combined with its market's dependence on a relatively few employers or industries. Whatever the reason, effective processes to identify, measure, monitor, and control concentration risk are important. It is also important that the bank maintain adequate capital relative to concentration risks.

Although each individual transaction within a concentration may be prudently underwritten, collectively the transactions may be sensitive to the same economic, financial, or business development events. If something triggers a negative development, the risk is that the sum of the transactions may perform or react similarly.

The size of a concentration, however, does not necessarily determine the risk. Different concentrations of the same size may represent very different levels of risk. Although 25 percent of capital remains the threshold for capturing concentrations for regulatory purposes, concentration risk management should be commensurate with the risk that a pool of loans represents.

Identifying, measuring, and appropriately mitigating concentration risk is ultimately dependent on the accurate and timely receipt and analysis of data. The absence of a sufficiently robust set of data elements hinders a bank's ability to identify, measure, monitor, and control concentration risk, regardless of the data's accuracy and timeliness. Similarly, a comprehensive data set is of little use if inaccurate, untimely, or unvalidated. Examiners should note concentrations that pose a challenge to management or that present unusual or significant risk to the bank in the ROE. Examiners should use MRAs to communicate the OCC's concern with deficient concentration risk management practices.<sup>20</sup>

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<sup>20</sup> Refer to the "Bank Supervision Process" booklet of the *Comptroller's Handbook* for more information regarding MRAs.

# Examination Procedures

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This booklet contains expanded procedures for examining specialized activities or specific products or services that warrant extra attention beyond the core assessment contained in the “Community Bank Supervision,” “Federal Branches and Agencies Supervision,” and “Large Bank Supervision” booklets of the *Comptroller’s Handbook*. Examiners determine which expanded procedures to use, if any, during examination planning or after drawing preliminary conclusions during the core assessment. These procedures should be used in conjunction with the more general procedures contained in the “Loan Portfolio Management” booklet (national banks) or *Office of Thrift Supervision (OTS) Examination Handbook*, section 201, “Overview: Lending Operations and Portfolio Risk Management” (FSAs). Examiners need to perform only those procedures that are relevant to the scope of the examination as determined by the following objective. This assessment should consider work performed by internal and external auditors and by other examiners on related examinations (e.g., MIS or the risk rating process<sup>21</sup>).

## Scope

These procedures are designed to help examiners tailor the examination to each bank and determine the scope of the concentrations of credit examination. This determination should consider work performed by internal and external auditors and other independent risk control functions and by other examiners on related areas. Examiners need to perform only those objectives and steps that are relevant to the scope of the examination as determined by the following objectives. Seldom will every objective or step of the expanded procedures be necessary.

**Objective:** To determine the scope of the examination of the bank’s credit concentration management process and identify examination activities necessary to meet the needs of the supervisory strategy for the bank.

1. Review the following documents for previously identified problems that require follow-up:
  - Supervisory strategy.
  - Examination scope memorandum.
  - The OCC’s supervisory information systems.
  - Previous ROEs and work papers.
  - Internal and external audit reports and work papers.
  - Bank management’s responses to previous examinations and audits.
2. Obtain and review the Uniform Bank Performance Report (UBPR) and applicable OCC reports or analytical tools. To the extent that the call report categories constitute

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<sup>21</sup> Refer to the “Rating Credit Risk” booklet of the *Comptroller’s Handbook* for more information.

concentrations, identify any trends (e.g., growth, delinquency, nonperforming, or loss) or changes in credit concentrations evident in those reports since the last examination.

3. Obtain and review the bank's
  - credit concentration management policies and procedures.
  - portfolio strategies and risk tolerance parameters.
  - list of data elements captured by MIS for concentration reporting.
  - schedule of concentrations identified by the institution.
  - credit concentration limits and exposure and exception reports.
  - credit concentration reports submitted to senior management or the board of directors.
  - capital planning and stress testing policies, procedures, and results.
4. In discussions with bank management, determine if there have been any significant changes in
  - credit concentration management policies and procedures.
  - control systems, including MIS.
  - credit concentration levels.
  - portfolio strategies.
  - risk tolerance parameters, including changes in credit concentration limits and exception levels.
  - the level of delinquencies, special mention or classified loans, nonperforming loans, or losses in any credit concentration.
  - capital planning and stress testing policies and procedures.
5. Based on an analysis of data provided in the previous steps—and input from the loan portfolio manager (LPM), credit team lead, functional examiner-in-charge (FEIC), and the examiner-in-charge (EIC), as applicable—determine the examination's scope and objectives.
6. Select from the following examination procedures the necessary steps to meet examination objectives and the supervisory strategy.

## Quantity of Risk

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**Conclusion: The quantity of risk is  
(low, moderate, or high).**

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**Objective:** To assess the level of concentration risk associated with the bank's credit portfolio.

1. Analyze the level of risk of each of the bank's credit concentrations. Consider in your analysis the size of the exposure and the concentration's credit quality indicators, including the amount and volatility of and trend in
  - delinquencies.
  - special mention and classified loans.
  - nonaccrual or nonperforming loans.
  - losses.
  - other credit quality metrics used by the bank (e.g., weighted-average risk grade or weighted-average PD).
  - underwriting standards.
  - exceptions to policy.
2. Determine the risk implications of the following:
  - Significant growth in the size of a credit concentration's exposure, including whether such growth might be masking deterioration in credit quality indicators.
  - Material changes in policies, procedures, or underwriting standards.
3. Review and discuss with management any internally prepared assessments of credit concentration risk (e.g., industry evaluations).
4. Review the local, regional, and national economic trends and outlook, and assess their impact on the bank's credit concentrations.
5. Review the bank's business and strategic plans and evaluate how their implementation may affect the level of risk posed by any credit concentration.
6. Review and discuss with management the results from applicable stress testing and capital planning assessments.
7. Evaluate the impact of mitigation strategies on the quantity of risk (e.g., limits, loan sales, or credit derivatives). Consider the objectives of these programs and management's experience with these tools.
8. Give special attention to asset classes with more volatility in performance (e.g., CRE construction, project finance, energy, agriculture, and leveraged financing loans).

9. Based on these reviews and findings, assess whether the bank has adequate capital to support the risk posed by its credit concentrations.

## Quality of Risk Management

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**Conclusion:** The quality of risk management is  
(strong, satisfactory, insufficient, or weak).

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### Policies

Policies are statements of actions adopted by a bank to pursue certain objectives. Policies guide decisions, often set standards (on risk limits, for example), and should be consistent with the bank's underlying mission, risk appetite, and core values. Policies should be reviewed periodically for effectiveness and approved by the board of directors or designated board committee.

**Objective:** To determine whether the board has adopted effective policies consistent with safe and sound banking practices and appropriate to the size, nature, and scope of the bank's credit concentrations.

1. Evaluate the relevant policies to determine whether they provide appropriate guidance for identifying and managing the bank's credit concentrations. Consider whether the bank has
  - established a tolerance for risk. This may be shown as a percentage of capital or expressed in terms of risk, not simply size (e.g., risk of dollar loss, or risk to earnings or capital).
  - developed a firm-wide framework for identifying credit concentrations across business lines, including consideration of distinct groups of loans whose credit performance may be correlated.
  - established a process for using stress testing to identify potential credit concentrations and to evaluate the potential impact of adverse scenarios on credit concentrations on the bank's capital and liquidity, and for reporting those results to senior management and the board of directors.
  - identified roles and responsibilities associated with identifying and managing credit concentrations, particularly those that may cross business lines or otherwise not be under common management.
  - defined the process for setting and monitoring credit concentration limits and for approving changes and exceptions.
2. Determine whether credit concentration limits are well defined and reasonable. Consider the way that limits are measured and the use of sublimits for different types and tenors of exposure within a credit concentration (e.g., property types and geography within CRE).
3. Verify that the board of directors periodically reviews and approves the bank's credit concentration policies, including relevant limits or strategies on significant credit concentrations.

## Processes

Processes are the procedures, programs, and practices that impose order on a bank's pursuit of its objectives. Processes define how activities are carried out and help manage risk. Effective processes are consistent with the underlying policies and are governed by appropriate checks and balances (such as internal controls).

**Objective:** To determine whether the bank has processes in place to provide accurate and timely assessments of concentration risk associated with its credit activities.

1. Evaluate how policies, procedures, and plans affecting credit concentrations are communicated. Consider whether management has clearly communicated objectives and risk limits for credit concentrations to the board of directors and affected staff, and whether the board has approved the objectives and risk limits.
2. In light of the scope and complexity of the bank's portfolio, evaluate the adequacy of the bank's process for analyzing credit concentrations. Consider the following:
  - Does the bank assess the level of risk associated with each concentration?
  - Does the bank's risk assessment aggregate exposures firm wide and across lines of business?
  - Are the results of the bank's risk assessments, including those from stress testing, appropriately incorporated into the bank's overall capital planning process?
  - Do the bank's conclusions concerning credit concentrations appear reasonable in light of information available from other sources?
  - Is the bank's capital level adequate to support the level and types of credit concentration exposures?
  - Is a formal analysis of higher-risk credit concentrations conducted periodically, and does the bank have an effective system for monitoring developments in the interim?
  - Is the bank's analysis adequately documented and are its credit risk conclusions communicated in a way that provides decision makers with a reasonable basis for strategy development?
  - Are the resources devoted to the analysis of credit concentration, including the number and expertise of staff members, considered adequate?
3. Determine whether appropriate internal controls are in place and functioning as designed. Complete the internal control questionnaire (ICQ), if necessary, to make this determination.

## Personnel

Personnel are the bank staff and managers who execute or oversee processes. Personnel should be qualified and competent, have clearly defined responsibilities, and be held accountable for their actions. They should understand the bank's mission, risk appetite, core

values, policies, and processes. Banks should design compensation programs to attract and retain personnel, align with strategy, and appropriately balance risk-taking and reward.

**Objective:** To determine management’s ability to supervise its credit concentrations in a safe and sound manner.

1. Given the scope and complexity of the bank’s portfolio, assess the appropriateness of the credit concentration management structure and the experience of designated personnel. Consider the following:
  - Evaluate whether the expertise, training, and number of staff members assigned to manage credit concentrations is adequate.
  - Evaluate whether reporting lines encourage open communication and limit the chances of conflicts of interest.
  - Evaluate the level of staff turnover and its effect on credit concentration management.
2. Through discussions with management, ascertain the adequacy of written policies for managing credit concentrations and management’s knowledge thereof.
3. Ascertain the adequacy of management’s practices and capabilities for managing credit concentrations, including timely responses to a changing environment.
4. Assess the performance management and compensation programs for staff members managing credit concentrations. Consider whether these programs measure and reward behavior that supports the bank’s strategic objectives and risk tolerance limits.

If the bank offers incentive compensation programs, assess whether the programs

- provide employees with incentives that appropriately balance risk and reward.
- are compatible with effective controls and risk management.
- are supported by strong corporate governance, including active and effective oversight by the bank’s board.

For more information regarding incentive compensation programs, refer to OCC Bulletin 2010-24, “Incentive Compensation: Interagency Guidance on Sound Incentive Compensation Policies.”

## Control Systems

Control systems are the functions (such as internal and external audits and quality assurance) and information systems that bank managers use to measure performance, make decisions about risk, and assess the effectiveness of processes and personnel. Control functions should have clear reporting lines, sufficient resources, and appropriate access and authority. MIS should provide timely, accurate, and relevant feedback.

**Objective:** To determine whether the bank has systems in place to provide accurate and timely assessments of concentration risk associated with its credit activities.

1. Determine whether MIS provide timely, accurate, and useful information to evaluate risk levels and trends in the bank's credit concentrations. Consider the following:
  - Are all material credit risk exposures across all lines of business captured (e.g., loans, leases, overdrafts, counterparties, securities, or off-balance-sheet transactions)?
  - Is the breadth of the data elements collected adequate given the scope and complexity of the portfolio?
  - To whom are reports distributed, how timely are these reports, and is the content appropriate for the audience?
2. Determine how compliance with credit concentration limits is monitored and reported to senior management and the board.
3. Assess the level of review for credit concentrations nearing their credit risk limits. Is there sufficient reporting to senior management and is oversight heightened?
4. Evaluate the adequacy of the system for monitoring current conditions in higher-risk credit concentrations. Consider the types of internal and external resources used.

## Conclusions

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**Conclusion: The aggregate level of risk is  
(low, moderate, or high).  
The direction of risk is  
(increasing, stable, or decreasing).**

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**Objective:** To determine overall conclusions and communicate findings regarding the quantity of risk and management's ability to identify, measure, monitor, and control credit concentration risk. Examiners should consider these conclusions as part of their overall assessment of the capital, asset quality, and management rating for the institution.

1. Prepare a summary memorandum to the LPM examiner, credit team lead, FEIC, or EIC regarding the quantity and direction of credit concentration risk and the adequacy of the bank's process for managing credit concentrations. Consider the following:
  - Quantity of risks associated with concentrations.
  - Asset quality of concentrations.
  - Quality of concentration risk management.
  - Quality of the bank's process for managing credit concentration, including the adequacy of policies and procedures.
  - Appropriateness of strategic and business plans in light of their impact on credit concentration risks.
  - Responsiveness of strategic and business plans to stress test results that identify credit concentrations or material affects from adverse economic scenarios.
  - Accuracy and timeliness of MIS and the breadth of data captured relative to the scope and complexity of the portfolio.
  - Quality of staffing and management's capability to manage concentrations.
  - Recommended corrective action for deficient policies, procedures, practices, or other concerns.
  - Adequacy of adherence to policies and credit concentration limits.
  - Adequacy of credit risk review or audit functions.
  - Other matters of significance.
2. For any issues of concern identified when performing the concentrations of credit procedures, determine their impact on the bank's aggregate credit risk and its direction.
3. Discuss examination findings and conclusions with the EIC, including a list of those concentrations (or pools) posing a challenge to management or presenting unusual or significant risk to the bank, that should be included in the ROE. If necessary, compose MRAs.
4. Discuss findings with bank management, including conclusions about credit concentration risks. If necessary, obtain commitment for corrective action.

5. Document recommendations for the supervisory strategy (e.g., what the OCC should do to effectively supervise concentrations of credit in the bank, including time periods, staffing, and workdays required).
6. Update the OCC's supervisory information systems and any applicable ROE schedules or tables.
7. Update, organize, and reference work papers in accordance with OCC policy.
8. Appropriately dispose of or secure any paper or electronic media that contain sensitive bank or customer information.

## Internal Control Questionnaire

An ICQ helps an examiner assess a bank's internal controls for an area. ICQs typically address standard controls that provide day-to-day protection of bank assets and financial records. The examiner decides the extent to which it is necessary to complete or update ICQs during examination planning or after reviewing the findings and conclusions of the core assessment.

1. Has a policy been adopted that specifically addresses concentrations of credit?
2. Does the policy establish well defined and reasonable concentration limits?
3. Does the policy include deposits, other financial transactions with financial institutions, and off-balance-sheet exposures?
4. Have controls been instituted to monitor the following types of concentrations:
  - a. Loans and other obligations extended to one borrower, counterparty, or group of related counterparties or borrowers?
  - b. Loans dependent on the same source of repayment (including guarantors)?
  - c. Loans extended to independent borrowers who sell the same manufacturer's product?
  - d. Loans predicated on the collateral support afforded by a debt or equity issue of a corporation?
  - e. Loans extended to other financial institutions?
  - f. Loans extended to one industry group or economic sector?
  - g. Loans purchased from a single source?
  - h. Loans originated within the same geographic areas?
  - i. Retail loans with common features?
  - j. Commercial products with common features, including CRE?
  - k. Loans with indirect exposure to specific asset types?
5. Are periodic reports of concentrations required to be submitted to the board or a committee for review?
6. When concentrations exist predicated upon a particular industry, does the bank make a periodic review of industry trends?
7. Are bank personnel qualified to manage concentration risk?
8. Do bank MIS provide accurate, timely, and useful information to evaluate and monitor concentration risk?
9. Does the bank have an appropriate independent review of concentrations risk management (e.g., audit or credit risk review)?

## **Conclusion**

10. Is the foregoing information an adequate basis for evaluating internal control in that there are no significant additional internal auditing procedures, accounting controls, administrative controls, or other circumstances that impair any controls or mitigate any weaknesses indicated above (explain negative answers briefly, and indicate conclusions as to their effect on specific examination procedures)?
  
11. Based on a composite evaluation, as evidenced by answers to the foregoing questions, internal controls are considered (strong, satisfactory, insufficient, or weak).

# Appendix

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## Appendix A: Abbreviations

ACL	allowance for credit losses
ALLL	allowance for loan and lease losses
CECL	current expected credit losses
CRE	commercial real estate
CSA	covered savings associations
EIC	examiner-in-charge
FEIC	functional examiner-in-charge
FSA	federal savings association
HELOC	home equity line of credit
ICQ	internal control questionnaire
LPM	loan portfolio manager
LTV	loan-to-value
MIS	management information systems
MRA	matters requiring attention
NAICS	North American Industry Classification System
OCC	Office of the Comptroller of the Currency
OTS	Office of Thrift Supervision
PD	probability of default
ROE	report of examination
UBPR	Uniform Bank Performance Report

## References

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Listed references apply to national banks and FSAs unless otherwise noted.

### Laws

- 12 USC 84, “Lending Limits” (national banks and CSAs)
- 12 USC 1464(c), “Loans and Investments” (FSAs)
- 12 USC 1464(u), “Limits on Loans to One Borrower” (FSAs)
- 12 USC 1467a(m), “Qualified Thrift Lender Test” (FSAs)

### Regulations

- 12 CFR 3.301, “Current Expected Credit Losses (CECL) Transition”
- 12 CFR 6, “Prompt Corrective Action”
- 12 CFR 30, appendix A, “Interagency Guidelines Establishing Standards for Safety and Soundness”
- 12 CFR 32, “Lending Limits”
- 12 CFR 101, “Covered Savings Associations” (CSAs)
- 12 CFR 160, “Lending and Investment” (FSAs)

### Comptroller’s Handbook

#### Examination Process

- “Bank Supervision Process”
- “Community Bank Supervision”
- “Federal Branches and Agencies Supervision”
- “Large Bank Supervision”

#### Safety and Soundness

- “Corporate and Risk Governance”
- “Country Risk Management”
- “Interest Rate Risk”
- “Loan Portfolio Management” (national banks)
- “Liquidity”
- “Mortgage Banking”
- “Rating Credit Risk”

### OTS Examination Handbook (FSAs)

Section 201, “Overview: Lending Operations and Portfolio Risk Management”

## **OCC Issuances**

OCC Bulletin 2006-46, “Concentrations in Commercial Real Estate Lending, Sound Risk

Management Practices: Interagency Guidance on CRE Concentration Risk Management”

OCC Bulletin 2010-24, “Incentive Compensation: Interagency Guidance on Sound Incentive

Compensation Policies”

OCC Bulletin 2011-12, “Sound Practices for Model Risk Management: Supervisory

Guidance on Model Risk Management”

OCC Bulletin 2019-31, “Covered Savings Associations Implementation: Covered Savings

Associations” (CSAs)

OCC Bulletin 2020-29, “Credit Concentrations: Joint Statement on Adjustment to the

Calculation for Credit Concentration Ratios Used in the Supervisory Approach”

## **Other**

FFIEC Call Report Instructions