

High concentrations of credit can threaten the independence of banks that allow them to grow without adequate controls. In this article, Bruce Stevenson explains how bankers can identify at-risk concentrations and set up policies and practices for creating balanced portfolios.

Managing Credit Concentrations: Policies and Practices for Achieving Balanced Portfolios

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THE RECENT COLLAPSE OF REAL ESTATE MARKETS and the resultant stress on the commercial banking industry caused bankers to focus in earnest on concentrations of credit and their role in the failure of lending institutions. Regulators, under new rules and regulations, also began to focus more intently on concentration-related risks. Section 305 of the FDIC Improvement Act (FDICIA), for example, directed each of the regulatory agencies to set standards for concentrations of credit risk, as well as interest-rate risk and risks from nontraditional activities.

Although credit concentrations appear in any type of loan portfolio, some of the most significant risks arise among commercial loans because of their volatility. In this article, we'll examine the following questions:

- What role do credit concentrations play in the failure of banks and thrifts?

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- How can you develop a portfolio perspective for credit concentrations?
- How should you measure, report on, and manage credit concentrations?

To conclude, we'll take a look at an example of industry concentrations and how a regional bank should understand and manage the risks of such concentrations.

Role of Concentrations in Bank Failures

High concentrations of credit often correlate directly with failure of banks or thrifts. The obvious example: New England banks in the early 1990s. A rapid buildup of real estate assets in bank portfolios in the late 1980s, followed by the collapse of the local real estate markets, accounted for many of these failures.¹ Old Stone Bank in Providence, Rhode Island, which was seized in 1993, illustrated this phenomenon as early as 1987 when real estate comprised as much as 38% of the loan portfolio.

Poor management of credit concentrations was instrumental in precipitating the credit union crisis in Rhode Island. Many of the members of the state-level deposit insurance agency (Rhode Island Share and Deposit Indemnity Corporation [RISDIC]) that failed and ultimately caused the collapse of RISDIC had heavy asset concentrations in real estate, as well as high exposures to individual borrowers.²

In recent times, the consequences of high credit concentrations also have been exacerbated by the structural shift of commercial borrowers away from banks into the public debt markets. In theory, a bank should be indifferent to concentrations of credit if the risk of default and loss in its portfolio is minimal. However, commercial borrowers that present low credit risks have found debt capital generally cheaper from nonbank sources. The borrowers that banks still service generally have higher loss potential, and concentrations of such credits can, in some cases, pose serious risks to individual banks.

The Need for a Portfolio Perspective

Bankers must view individual credits as part of a larger portfolio—a perspective that has been embraced only recently by bankers. The management of credit portfolios represents a new discipline within many banks, and the levels of sophistication vary widely.³ At one end of the spectrum, some banks have adopted sophisticated loan-loss reserve models based on the fact that loan portfolios have predictable behavior that can be mimicked mathematically. At the other end is the traditional loan-by-loan subjective management that tends to deemphasize portfolio analysis.

Before learning how to manage a credit portfolio, bankers must first understand the basics of portfolio theory. The most commonly accepted body of thought on the subject is Modern Portfolio Theory (MPT), a

mathematical approach that commercial bankers have been slow to adopt. However, quantitative methods of portfolio and risk management are increasingly common.⁴

MPT holds that diversification is good. In general, the optimal mix of portfolio holdings—that is, when returns are maximized for a given level of risk—occurs in portfolios that lack significant concentrations.

However, asset concentrations also can be purposefully created to maximize short-term gains, a common strategy among portfolio managers of mutual and pension funds. In this case, a manager may attempt to “time” the market by allowing a portfolio concentration in a sector for which the manager expects significant yields. Such portfolios require regular “rebalancing,” a shifting of assets to foster diversification in order to optimize risk-adjusted returns.

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Like mutual fund managers, commercial bankers sometimes concentrate credits in order to create short-term earnings gains. However, they are less likely to follow up with the necessary rebalancing for several reasons. *First*, since the secondary markets for commercial loans are not well developed and trading of loans is limited, commercial bankers typically cannot rebalance portfolios through active trading. *Second*, credit concentrations usually emerge because of focused lending strategies that require dedicated infrastructures, including lending specialists. Rebalancing under these circumstances often means changes in target marketing, slowing lending in certain sectors while growing it in others, and redeployment of personnel. As a result, portfolio rebalancing is costly and can take time.

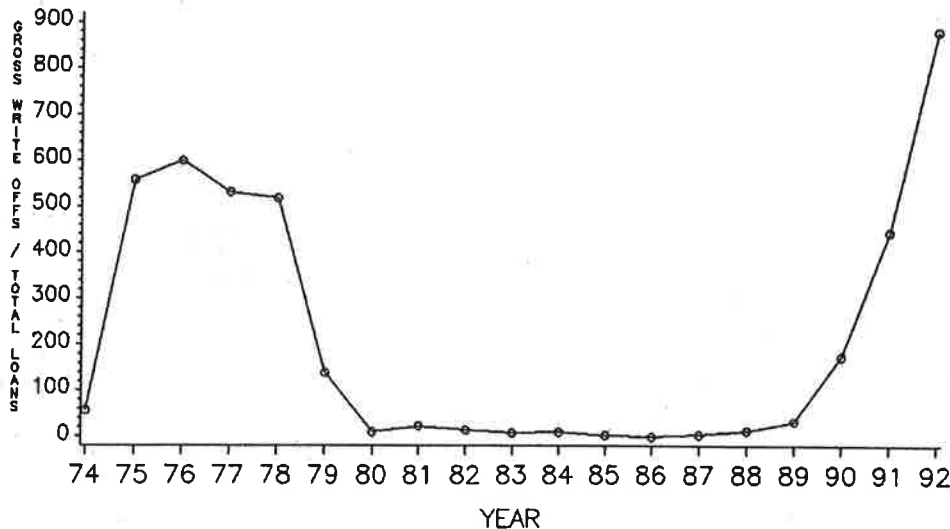
However, the market events of the last 20 years have awakened bankers to the risks of failures to rebalance. A look at the cyclicity of losses on commercial real estate loans (*Exhibit 1*) soundly illustrates the results of coupling high credit concentrations with poor market timing.

Taking a Contrarian Perspective

The issue of market timing raises another important, though rhetorical, question: Can a bank be a contrarian? A contrarian bank would lend under conditions that have caused other lenders to leave the market and exit the market when other institutions are lending most actively. In the case of commercial real estate, the contrarian bank would have been in the market from 1978 to 1986 and exit thereafter, perhaps reentering in 1993. Some of the signals that the contrarian bank might use to flag entry and exit points are capital flows, construction starts, and rental and vacancy rates.

Exhibit 1

**The Pattern of Gross Charge-offs (basis points)
on North American Commercial Real Estate Loans
at a Money-Center Bank**



Managing Credit Concentrations

Given the risks associated with concentrations of credit, commercial banks need to adopt a risk-management program that consists of the following three steps:

- Identify key risk dimensions along which concentrations could exist and define what constitutes a concentration for each dimension.
- Establish a reporting process to measure and analyze concentrations.
- Implement programs to manage concentrations consistent with the objectives of the bank's senior management.

Identify key risk dimensions and define concentrations

You must first determine the risk dimensions—that is, the key credit characteristics lenders focus on when they decide to make a loan—along which concentrations could exist. Some examples of risk dimensions include standardized measures of default risk (for example, credit score or risk rating), geography, industry, loan type, single obligor, or seasoning (for example, tenor, expected average life).

You must create a reliable database of exposures for these key risk dimensions. Measuring credit concentrations requires sophisticated computer systems. Without mature management information systems (MIS) a bank may end up with credit-risk concentrations unknowingly. Creating the computer systems and MIS to identify risk dimensions may expose key issues to be dealt with, such as how to define at-risk geographic areas or to identify one-obligor relationships.

A crucial part of managing concentrations consists of defining a concentration. It is axiomatic that the risks of a concentration will vary according to risk dimension and, therefore, concentrations should not be defined uniformly across dimensions. A bank should ask the following questions as it defines a concentration:

- Is a concentration defined in absolute numbers (for example, borrowers, outstandings, commitments)?
- Is it defined in relative numbers (for example, a percentage of capital)?
- If a concentration is defined on a relative basis, what is the denominator? Capital (and what kind)? Reserves? Earnings?

It is useful to refer to regulatory definitions. In an internal memo of the Federal Reserve banks,⁵ concentration is defined as follows:

Concentration of credit risk may generally be characterized as inordinately high levels of direct or indirect credit exposures to a single or related group of borrowers, credit exposures collateralized by a single security or securities with common characteristics, or credit exposures to borrowers with common characteristics within an industry or similarly affected group. Concentrations may comprise aggregates of all types of credit exposures including loans, loan commitments, overdrafts, loans and securities purchased outright or under resale agreements, sale of federal funds, suspense assets, leases, acceptances, letters of credit, placements, loans endorsed or guaranteed, interest rate swaps or any other on- or off-balance sheet credit exposures.

The Office of the Comptroller of the Currency (OCC) specifies "a concentration of credit consists of direct, indirect or contingent obligations exceeding 25 percent of the bank's capital structure."⁶

Establish a reporting process

Once a bank has defined a concentration for each relevant risk dimension and established information systems to track concentrations, it should create credible concentration reports. These reports should

include total concentrations in absolute dollars as well as concentrations relative to external benchmarks and relative to bank capital. In addition, it is critical to track and report on credit concentrations over time to capture the dynamic nature of portfolios.⁷

With respect to external benchmarks, it is important to note that a bank may create a concentration in its loan portfolios simply by lending in a geographic region where a particular industry or dominant employer is located. Such concentrations are not necessarily harmful.

Having established the necessary systems and reports to identify concentrations, bank management must analyze whether the concentrations that exist in the portfolio are appropriate. These analyses should be substantive and result in recommendations that affect the bank's policies for managing its loan portfolios.⁸ The reports should identify the potential risks and rewards of a concentration and make suggestions for action by senior management. Risks and rewards may differ significantly by industry, region, and each of the other key risk dimensions.

Implement programs to manage concentrations

Senior management may elect a number of courses for managing concentrations of credit. Among the most notable are the following:

- risk-adjusted pricing mechanisms,
- concentration limits, and
- personnel programs.

Risk-adjusted pricing mechanisms. A number of bankers have proposed risk-adjusted pricing as a tool to manage credit concentrations in commercial loan portfolios. They argue that a bank should charge borrowers for *expected loss* (that is, set a provision for inherent loss) and *unexpected loss* (that is, some portion of historical loss volatility). As concentrations become larger and larger, the bank will have to increase the equity it allocates to each borrower since the volatility of the loan portfolio will increase with growing concentrations. If concentrations become too large, market pricing will be insufficient to yield satisfactory returns on the (risk-adjusted) equity.

In theory, risk-adjusted pricing may be an effective tool for limiting exposures to individual borrowers. For example, imagine a portfolio of commercial exposures, all of equal size to commercial borrowers of equal credit risk. As new, larger exposures are added to the portfolio, the volatility of loss in the portfolio increases. The equity required to cover that loss also will increase. When market returns are insufficient to provide adequate return on that equity, a concentration limit for exposures to individual borrowers is achieved.

Risk-adjusted pricing may not be an effective management tool for certain risk dimensions. Take, for example, Bank XYZ, a large (\$25 billion) commercial bank in New England specializing in syndicated credits to publicly rated borrowers. Internal research at Bank XYZ suggests

that BB- and B-rated borrowers are the appropriate target market and that yields on loans to BB-rated borrowers must be greater than Libor+75 basis points (bp) and loans to B-rated borrowers must yield Libor+300 bp to provide a satisfactory return on equity.

Among all syndicated deals in the market, fewer than 10% match Bank XYZ's criteria. Of the loans that do match, 23% are in retail (36% of B-rated credits) and 7% are in communications (10% of BB-rated loans).⁹ Thus, a bank can end up with substantial industry concentrations even as it strives to book profitable loans. Bank XYZ has to use other tools, such as concentration limits, to check disproportionate concentrations.

By definition, portfolio exposures along a risk dimension are capped at a level commensurate with the risk appetite of senior management.

Concentration limits. Concentration limits represent a defensive portfolio strategy to preclude worst-case losses. By definition, portfolio exposures along a risk dimension are capped at a level commensurate with the risk appetite of senior management. Establishing limits, therefore, is inherently a subjective process. A bank should select limits that are not overly conservative and do not unduly limit origination and are not too generous and do not allow excessive exposure, particularly along dimensions that are correlated. Limits should be consistent with management's portfolio objectives. Standards for establishing limits include comparing existing portfolio composition against external benchmarks and against the bank's maximum loss tolerance.

Since concentration limits are a defensive portfolio strategy, it is appropriate to consider those concentrations of credit associated with bank failures. For example, among failed banks in New England for which losses on commercial real estate were a cause of failure, real estate assets typically made up 20% or more of total assets.¹⁰

Exhibit 2 shows an example of how our hypothetical Bank XYZ might establish concentration limits. If we assume that, based on the New England experience, no concentration should exceed 20% of total assets, then we can compute worst-case losses under this limit. Here, we assume an annual default rate of 35% (equal to the worst rates of the New England real estate collapse) and a loss severity of 40% on nonaccrual balances.

After-tax losses in this worst year are \$420 million for this \$25 billion bank ($\$25 \text{ billion} \times 20\% \text{ concentration limit} \times 35\% \text{ default rate} \times 40\% \text{ loss severity} \times [1 \text{ minus } 40\% \text{ tax rate}]$). These losses represent 19% of total capital and, more important, 75% of the allowance for loan and lease losses (ALLL) and more than 1.5 times normalized (for example, average annual) net income. Since lending crises tend to occur over several years, we can expect these losses will badly damage earnings and significantly eat into capital beyond the one-year losses cited here. Bank

Exhibit 2

**Hypothetical Maximum Loss Tolerance
Bank XYZ**

Total assets		\$25,000,000,000
Total capital		2,272,725,000
Tier 1		1,573,408,000
Tier 2		699,317,000
Total allowance for loan and lease losses (ALLL)		577,500,000
Normalized net income		250,000,000
20% of assets		5,000,000,000
Worst-case losses		
Under 20%-of-capital concentration limit*		420,000,000
Worst-case losses		
Under 10%-of-capital concentration limit		210,000,000
Losses as a Percentage of:	20% Limit	10% Limit
Total capital	18.5%	9.2%
Tier 1	27.7	13.3
Tier 2	60.1	30.0
Total ALLL	75.3	37.7
Normalized net income	168.0	84.0

*Assumes 35% annual default rate, 40% loss severity, and 40% tax rate.

XYZ may choose to set a lower concentration limit, such as 10% of assets, for which losses would be halved under the same worst-case conditions.

Under worst-case conditions, Bank XYZ probably would not have a “normalized” net income since it would likely move some or all of those earnings into its ALLL. Defaulted loans also do not contribute to net-interest margin. However, these examples do point out the fragility of bank earnings in the face of significant credit losses and the importance of maintaining caps on credit exposures.

Personnel programs. Commercial bankers can manage portfolio concentrations by directing bank personnel to achieve specific portfolio objectives. For example, if a bank has established lending specialties, such as designated lending units for commercial real estate or asset-based lending, senior management can emphasize or deemphasize lending activities in these areas to rebalance portfolios. At its extreme, this tactic involves redeploying personnel across lending specialties.

Further, personnel incentives as a tool for managing portfolio concentrations are a relatively new development in banking. Banks have only recently begun to reward personnel for profitable growth (versus growth for growth's sake). As we noted earlier, risk-adjusted pricing (and associated marketing incentives), for example, is an effective way to limit credit concentrations to individual borrowers.

Banks with the most sophisticated management of credit portfolios have developed mechanisms by which portfolio objectives are clearly communicated to lending officers. Lenders are directed to make loans to the target areas and rewarded for their success.

Credit Concentrations: Industry Risk

One of the most common forms of credit concentrations within commercial loan portfolios is large exposure to an industry or group of related industries. Industry concentrations generally occur by lending within a geographic region where an industry is concentrated, by lending to capital-intensive industries, or by lending to industries based upon specialized expertise or strategic marketing.

For reporting and portfolio management, many banks use standard industrial classification (SIC) codes to group borrowers according to industry. An important issue bankers often overlook is covariance, in this case, the tendency of industries outside of a given SIC code to show similar patterns of earnings growth or, especially, bankruptcy or loan-loss rates. A more preferable method of aggregating borrowers is to create industry classes that link SIC codes that show high covariance, for example, linking all healthcare borrowers (hospitals, nursing homes, doctors, etc.).

Portfolio risks that result from industry concentrations can be very localized. In recent months, bankers lending to the defense industry have had to take into account base closings and substantial layoffs resulting from reduced defense spending. New England banks are especially vulnerable since this region is the most defense-dependent region in the United States.¹¹ Substantial defense cutbacks will affect these areas adversely through direct job loss (with potential out-migration), lower economic activity (especially a decline in consumer spending), and local decline in the value of assets, particularly real estate.

Defense-related economic activity in the Northeast is concentrated in specific submarkets. Of the 25 submarkets with the highest relative levels of defense-related employment, 19 are in New England and New York.¹² This region also has a number of submarkets dominated by military bases or similar installations. Turning again to hypothetical Bank

XYZ, located in the Northeast, the practices it applies to manage risks to the defense industry should include the following:

- analysis of those markets and borrowers most likely to be adversely impacted by defense cutbacks,
- specific stay/leave strategies (that is, strategies for determining when to stay with or exit from lending relationships) for commercial borrowers that would be implemented under worst-case conditions.

These management standards can be applied to all industries, not just the defense industry.

Finally, portfolio management by industry is not simply a tool to identify and control risk. Understanding portfolio concentrations and gaining insight into the likely future of an industry will allow a banker to understand potential lending opportunities and to capitalize on those industries that will grow.

Notes

¹Richard E. Randall, "Lessons from New England Bank Failures," *New England Economic Review* (May/June 1993): 14-15.

²Thomas E. Pulkkinen and Eric S. Rosengren, "Lessons from the Rhode Island Banking Crisis," *New England Economic Review* (May/June 1993): 3, 7, and 8.

³See for example P. Larr and A. Stampleman, "Concepts of Portfolio Management Part 1: Measuring and Controlling Risk," *The Journal of Commercial Lending* (June 1993): 6-11, and "Concepts of Portfolio Management Part 2: Understanding and Using the Model," *The Journal of Commercial Lending* (August 1993): 26-31.

⁴"New Tricks to Learn," *The Economist, A Survey of International Banking*, April 10, 1993.

⁵Memo to the Board of Governors of the Federal Reserve System, "Revisions to Risk-Based Capital Standards to Account for Concentrations of Credit Risk and Risks of Nontraditional Activities (Section 305 FDICIA)," March 26, 1993, p. 2 (of attached report).

⁶Comptroller's Handbook for National Bank Examiners, Section 216.1, "Concentration of Credits," 1986, p. 1.

⁷P. Larr, "Make Portfolio Management Four-Dimensional," *ABA Banking Journal* (July 1992): 55-58.

⁸A recent survey conducted by Robert Morris Associates suggests that most major commercial banks have explicit policies for enhancing the diversification of their loan portfolios. These policies are established to foster portfolio management goals such as minimizing portfolio risk or credit loss. See *The Journal of Commercial Lending* (December 1992): 7.

⁹Source: Loan Pricing Corp.

¹⁰Randall, p. 18.

¹¹As of 1992, 6% of all employment in New England was in defense-related businesses and 11% of all contracts issued by the Defense Department were to New England firms.

¹²Source: Cognetics Real Estate, Inc.