Establishing Exposure Limits for a Credit Portfolio

by James V. Lentino

Active management of concentration is a key objective of any credit portfolio management effort. This article outlines a sound but practical portfolio limit framework that allows an institution to manage concentration risk yet position itself to respond quickly to market changes.

It's common to hear praise for concentration limits as an important portfolio management tool. It's equally common, however, for enforcement of portfolio limits to fall prey to political and budgetary pressures. The challenge of today's portfolio manager is to create a portfolio limit system that is at once both effective in protecting the institution from single credit events and practical in its enforcement.

Setting limits isn't a one-size-fits-all process. Individual considerations include:

- The size and nature of the institution.
- Strategy.
- Credit appetite.
- Competitive advantages.
- Systems.

- The existing level of portfolio diversification.

Many banks have expertise in certain sectors or regions that may justify extra concentration of risk. It is worth noting that, diversification for the sake of diversification, particularly in areas where an institution has little expertise, may actually add to risk rather than reduce it.

Healthy, effective limit systems are designed to flag pockets of vulnerability. They create a framework for discussions among Risk Management, the origination groups, and Portfolio Management. In doing so, they are a key part of a culture that directs the day-to-day activities of an institution around return and risk optimization.

Many types of limits are available for a given portfolio of credit exposures. Limits can be set by product, asset class, business lines, ratings, geography, industry, lending office, origination group, obligor, or duration, just to name a few. The appropriate combination of limits depends on the number of business lines, the size and geographic spread, the sophistication of management and staff, the robustness of the systems, and the complexity of product offerings and activities.

There is no one ideal limit system, but since the objective is to manage credit exposure in a way that affords protection against a single credit event, the system should at least be able to report and monitor the credit exposure.
portfolio by obligor, industry, and region. This is in line with the minimum information that rating agencies require to evaluate such portfolio structures as CLOs (collateralized loan obligations) and CBOs (collateralized bond obligations): issuer concentrations, industry concentrations, and regional or country concentrations. Follow-up servicing reports to investors also use such information to report on the performance of the portfolios. Limits and triggers are often placed on the asset pool in terms of maximum limits for a single obligor and maximum concentration by sector or region. Hedge funds and prime funds also manage themselves within similar limits.

Some corporate finance professionals would argue that an institution receives no benefit in its share price from diversifying activities because investors are able to diversify on their own. However, many others believe that increasing the number of obligors in any pool diversifies credit risk and reduces the volatility associated with an earnings stream, which, in turn, leads to a higher valuation multiple.

Standard & Poor’s observes that although diversification by sector is beneficial, there is a diminishing marginal benefit to diversifying a portfolio by industry. Although S&P tracks exposures by 39 industry categories, it assumes that a pool of assets distributed over as few as 13 industries (that is, no sector accounting for more than 8% of assets) is fairly diversified. In rating a CLO, ratings agencies will notch a rating down for each obligor in the sector to the degree by which the sector exceeds the 8% guideline.

It is important to recognize that an institution limited by geography, strategy, or expertise does not always have natural opportunities for diversification. This again highlights the importance of aligning the portfolio management mandate and the limit system with the strategy of the bank.

**Loan Equivalent Exposures**

When an institution sets portfolio limits, it is ultimately trying to manage notional exposure. Nevertheless, the vagaries and customization that are available around the credit product make it difficult to compare notional exposure across obligors, sectors, and regions. A $100 million exposure to a AAA-rated entity is not equivalent to a $100 million exposure to a BB-rated entity; similarly, an unsecured facility to a single-B obligor is not viewed in the same way as a secured obligation in the same amount to another single-B entity. The question is further complicated by the increasing number of derivatives products that are available. A $10 million notional interest rate swap with a counterparty does not represent the same risk as a $10 million funded loan to the same counterparty.

If institutions were to build a limit system exclusively around notional limits, the wide variety of credit products and their combinations would require an endless number of notional limit combinations. It would be necessary to set limits based on region; within region, by borrower; within borrower, by rating; within rating, by product type; within product type, by tenor; within tenor, by collateral type; within collateral type, by collateral amount; and so forth. Such a system would be unmanageable and, more important, would be too complicated to be meaningful. Thus, many institutions have developed the concept of a loan equivalent exposure. A robust economic capital (EC) and risk-rating system allows an institution to convert the endless variety of ratings, regions, product types, tenors, and collateral types into a single metric; this metric then allows comparisons across exposure types, regions, and business lines.

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A limit system based on economic capital accommodates a wide variety of exposure types and forms a simple and sound basis for a limit system. As a loan equivalent measure, EC captures many drivers of risk in a single metric. This allows the institution to simplify its limit system and create a single framework for limit setting, capital allocation, and per-
formance measurement based on risk-adjusted economics. For example, a $300 million unsecured exposure to a BBB-rated borrower might imply $10 million of EC. That same $10 million of EC would imply a much larger acceptable notional exposure for a one-year facility to a AAA-rated borrower. It would also imply a much lower level of acceptable exposure to a B-rated borrower. Similarly, for a given tenor, that same $10 million of EC might imply one level of notional exposure for an unsecured BB-rated borrower but would accommodate somewhat higher exposure for a secured borrower of the same rating and tenor.

Figure 1 highlights such differences at the industry level as well. Although the financial institutions sector in the sample portfolio represents the largest percentage of limits, it contributes relatively less in terms of risk to the portfolio as measured by EC. The utilities sector in this portfolio, however, represents a modest percentage of total limits, but it contributes a higher-than-average percentage of risk for the portfolio as evidenced by its high percentage of the portfolio’s total EC.

Setting Limit Levels
An effective limit system sets limits around EC at three different levels of the portfolio.
1. A limit is set on the overall EC level consumed by the credit portfolio. This is a very top-down type of limit and is typically set as part of the capital allocation process.
2. Further limits are set at the sector or regional level. For example, an institution may determine that it does not want the EC for any one industry sector or region to exceed a certain dollar amount or a certain percentage—for example, 8%—of the overall EC for the firm.

3. A limit is set at the single obligor level so that the EC from any single relationship group does not exceed more than a certain dollar amount of EC and the EC from any single relationship group does not exceed a certain percentage of the firm’s overall EC.

A common approach to limits is to set them as a percentage of capital, with a variety of definitions available for capital—for example, Tier 1 capital, Tier 2 capital, regulatory capital, market capitalization, or EC. Such limits typically are set with the idea that an institution is willing to bear losses only to a point where its capital is not impaired. For example, banking regulators often limit exposure for U.S. banks based on some maximum percentage of capital. These legal lending limits vary by state but typically range between 15-25% of book capital.

In theory, this is a sound basis for limit setting. In practice, however, an institution may find that the threshold of pain comes much earlier than the point at which a firm’s capital position is in jeopardy. Typically, bonus pools, performance metrics, and future employment imply a much lower acceptable loss limit than a capital-based system would imply. Accordingly, in setting limits, some work should be done to evaluate the board’s loss tolerance, which may be lower than levels implied by more traditional capital-based limits.

It also should be noted that organizations do not “lose” EC. They lose notional exposure. In managing a limit system based on EC, we do not manage the EC...
number, per se; we must be equally cognizant of the notional exposure that forms the basis for the EC calculation. For this reason, many institutions supplement EC-based limits with some form of notional limits—for example, the exposure to a single borrower should not exceed the lesser of $10 million of EC or $2 billion of notional exposure. Supplementing the EC-based system with a notional limit provides some protection against model risk in cases where model-related issues or improper risk coding incorrectly captures the risk that a particular asset contributes to the portfolio. Figure 2 provides an example of a limit system in which EC limits are supplemented with notional limits.

### Other Metrics

Other metrics also are available to measure and monitor concentrations in a portfolio. Limits around EC and notional limits can be supplemented by limits around these other metrics, which include the concentration ratio (CR) and the so-called Herfindahl-Hirschman Index, or HHI. The U.S. Department of Justice uses both the CR and the HHI to evaluate concentrations within an industry whenever they measure market share implications of corporate mergers. These ratios can be adapted for use in evaluating concentration in a credit portfolio as well.

The CR in the context of a credit portfolio can refer to the sum of the concentrations of the largest four industries in the portfolio and can be expressed as:

\[
\text{CR} = C_1 + C_2 + C_3 + C_4
\]

where \(C_i\) = the notional exposure or EC tied up in a single sector as a percentage of total notional exposure or EC in the portfolio.

If the CR were close to zero, it would be an indicator that there is very little concentration in the portfolio. While each firm can set its own target concentration ratio, 40% is often used as the dividing line as to whether concentration exists in a portfolio.

The HHI is a similar concept, but it squares the concentration percentages of each sector to place more weight on the larger concentrations. The calculation includes all of the sectors in the portfolio and not just the top four sectors. The HHI can be expressed as:

\[
\text{HHI}_{i} = C_1^2 + C_2^2 + C_3^2 + \ldots + C_n^2
\]

where \(C_i\) = the notional exposure or EC tied up in a single sector as a percentage of total notional exposure or EC in the portfolio.
A GOVERNANCE STRUCTURE AROUND THE LIMIT SYSTEM SHOULD INCORPORATE AN APPROPRIATE SEPARATION OF DUTIES IN WHICH ONE PARTY, SUCH AS THE RISK DEPARTMENT, SETS THE PORTFOLIO LIMITS, AND ANOTHER PARTY, SUCH AS CREDIT PORTFOLIO MANAGEMENT, IS RESPONSIBLE FOR MANAGING THE PORTFOLIO WITHIN THE LIMITS.

The highest possible HHI is 10,000, which assumes that a single sector represents 100% of the portfolio. The HHI can be extreme on the low end, depending on the number of sectors and the sizes of the concentration percentages. Typically, an HHI of less than 1,000 would be considered a relatively unconcentrated portfolio, while a ratio above 1,800 would be considered a highly concentrated portfolio.

Ratios such as the CR and the HHI can be measured and monitored for a portfolio over time. They provide insight into the movement of concentrations within the portfolio. Limits can be set around these ratios. They also can be used to measure the effectiveness of the PM function in managing concentration in a portfolio.

Markets-based approach.
Yet another approach to setting limits is what could be considered a markets-based approach. It is possible to look at all debt issued in the market, a bank would set its telecom limit at no more than 25% of its own book. This is a more difficult policy to maintain. Such an approach would require the creation of a broad index of issuance across investment grade and non-investment-grade issues. Such information is not always readily available.

Governance and Approval of Exceptions
Regardless of the limit structure employed, governance around the limit system is essential to its effectiveness in helping an organization manage concentrations. In most organizations, a separation of powers should exist between those that are setting the limits and those that are accountable for managing the portfolio within the limits. It would be inappropriate for a portfolio management function to set its own limits for the portfolio and approve excesses to those limits without oversight.

In a typical organization, Risk Management could serve in the role of setting portfolio limits. The mandate of Portfolio Management would be to work with the business to manage the portfolio within the limits set by Risk. Any exceptions to the limits would then be approved by a separate function. For example, the approving body could be Risk Management or even the board of directors directly in those cases where Portfolio Management is housed within the Risk Management structure.

A governance structure around the limit system should incorporate an appropriate separation of duties in which one party, such as the Risk Department, sets the portfolio limits, and another party, such as Credit Portfolio Management, is responsible for managing the portfolio within the limits. The behavior of most institutions indicates that portfolio management groups typically view limits as a management discussion tool rather than a trading rule. In a 2004 survey of portfolio managers conducted by the International Association of Credit Portfolio Managers (IACPM), 47% of respondents indicated that limit excesses are only “occasionally” eliminated through sale or hedging. Another 29% indicated they “usually” eliminate through sale or hedge, while only 6% indicated limit excesses are “always” eliminated through sale or hedge.

The sound practice therefore appears to be viewing limits more as thresholds rather than hard limits that must be executed at any cost. A system that prompts an active dialogue between the appropriate stakeholders to achieve an appropriate action plan for the institution in light of its strategy and objectives will, in the long run, be more effective. A dra-
conian approach to exposure management can lead to frustration within the institution.

Once the EC for a borrower, sector, or region exceeds its limit, there should be no automatic hedging or disposal of exposure for that client, sector, or region. Instead, the breach of an EC based guideline should prompt the appropriate discussion between Risk, Portfolio Management, the origination group, and if necessary, the board as to the nature of the underlying exposure, what it consists of, the accuracy of the data inputs behind the EC number, and the outlook for the obligor, region, or sector. The governance structure should outline and facilitate the manner in which such discussions take place. These discussions about limit excesses can show whether the institution is comfortable with the existing level of exposure or if an action plan is required that will identify steps to bring exposure down and over what time frame.

The danger of such “threshold and discussion” approaches is that corrective action around concentrations is often discussed but never takes place. While draconian management of limit systems is not realistic, if an organization never takes action on limits, the tool loses credibility in the eyes of the line, Risk Management, shareholders, and regulators. Whether positioned in the public side of the wall or on the private side, the group responsible for managing the limits must have the authority and the infrastructure to execute this mandate. This implies, within reason, the appropriate control over the assets, the appropriate incentives, the appropriate budget, and the appropriate skills set.

Moving Forward

As the portfolio management mandate evolves in an organization, the discussions around the management of concentrations also can evolve—from simple standard percentages, such as no more than 8% in a particular industry sector, to a more dynamic system of overweighting and underweighting signals around the standard 8% concentration limit. For example, if 8% is the baseline limit, discussions between Risk, the origination group, and Portfolio Management may lead to a consensus that a combination of positive credit outlooks, favorable market conditions, and above-average returns and cross-sell in a sector warrant a more aggressive marketing approach in a particular sector to take advantage of favorable conditions. The stakeholders may agree to an overweight position of 10-12% for a particular sector. Other sectors, where perhaps the credit outlook is not as favorable or the returns and cross-sell opportunities have not been forthcoming, may be moved to an underweight status and the constituents may agree to reduce or limit exposure in the sector to no more than 5-6% of the portfolio. By having an infrastructure and governance model that facilitates such dialogue at regular intervals, an organization is better able to position its portfolio properly to take advantage of conditions as they evolve.

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Resources


