

HOW TO DETERMINE THE **RIGHT MEASURE** **OF LOSS**



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INTRODUCTION

Chief financial officers at financial institutions have enough other concerns to not worry about the historical loss measure for FAS 5 loans.

Unfortunately, key parties—from the Board of Directors to auditors to regulators—worry about it each time an ALLL calculation is performed. What measure is right? Does the loss period cover too much time? Does it go far enough? What about migration? Selecting a historical loss measure and then defending that measure may sound daunting, but it does not have to be a real challenge.

INTRODUCTION

AVAILABLE
ON-DEMAND
WEBINARS:

[How to Calculate
Your FAS 5 Reserves](#)

[How to Prepare Now
for FASB's CECL
Model](#)

[Access all
on-demand
webinars](#)

There are a number of methods used to measure expected loss for FAS 5 loans, and each has its own merit. Historical loss has been used extensively by financial institutions for years because the rates are easily determined and available in management and regulatory reporting. Loss migration is a more involved calculation, requiring considerable resources, but may be more accurate when measuring loss because of its granularity. PD/LGD builds on the default probabilities already built into an institution's risk rating process by incorporating industry- or segment-specific loss percentages to calculate expected loss.

Loss Discovery Period is a variant of all three that adds a new factor: the time between:

1. when an institution recognizes a customer cannot meet his or her obligations and
2. when a charge-off occurs.

Selecting the correct period requires an analysis of the portfolio's past, not just recent performance, and includes an evaluation of the performance and loss history for each line of business as well as changes in credit policies, portfolio volume and management over time.

This is not an exercise that can be done in a vacuum. One size (or loss discovery period) does not fit all. Selecting the loss measure is an opportunity to engage professionals from across the institution and build consensus on a loss measure as well as common or unique loss horizons for each segment. Having that consensus, along with quantifiable research and documentation, lends credibility to the selected measure when defending it to stakeholders.

“AM I DOING THIS RIGHT?”

Loss measures, or the methods by which an institution calculates loss rates used in determining the allowance for loan and lease losses (ALLL), are oftentimes passed down period to period at institutions with little consideration. “It has always been done this way” is the refrain consultants frequently hear. Prudent institutions take time to analyze options thoroughly, and there are a number of options to consider when selecting loss measures.

Careful examination of the loan portfolio’s recent performance should be undertaken, with special attention given to

1. the loss experience during times of economic uncertainty and
2. changes in portfolio concentrations, risk profile and management.

This review should include both credit and risk management employees with strong knowledge of the portfolio’s performance.

The result of this review should be a consensus selection of a loss measure and loss period that closely estimate a one-year expected loss for the portfolio or for each portfolio segment. Institutions should take special care to document the research behind loss rates and be sure to periodically review those loss rates and their loss horizons.

The two most common methods by which to measure loss in a [FAS 5 pool](#) are historical loss and migration, while a third and less commonly used method for most banks calls upon probabilities of default and loss given default models. There is also a variant to historical loss and migration that adds a loss discovery period to the result, a new way to include borrower behavior and the time it takes to recognize default.

HISTORICAL LOSS

The [historical loss method](#) uses an annualized average net charge-off rate incurred during a prescribed time period as a proxy for estimating future losses. The loss rate is derived from one of two sources: losses incurred from the institution's own portfolio or those incurred by a [peer bank or a pool of peer banks](#).

The peer bank data is typically derived from an analysis of recent call report data. Historical loss is most commonly used by smaller institutions or by other institutions with statistically small portfolio segments.

When considering the historical loss method, three items should be considered: the availability of data, the loss horizon and portfolio segmentation.

Regarding data for historical loss, oftentimes the challenge isn't accessing the data but transferring it for reporting purposes. Many banks and credit unions have either aggregated portfolio performance data in periodic spreadsheet exports, or they will reference historical data available in call reports. Yet, documenting that information into a transparent calculation can be difficult.

[Loss horizons](#) can be challenging to develop because the horizon for each segment must be able to generate an annualized historical loss rate that captures losses to be incurred in the next year. How many years must be included, then, in the horizon? One, two or even five?

Typically, financial institutions use either [two or three years](#), but the duration should be based on the institution's own loss experience. During periods of economic growth or recession, financial institutions may consider a shorter

RECENT POLL:

What time horizon do financial institutions use within their FAS 5 reserves?

[See the results](#)

HISTORICAL LOSS (CONT.)

horizon, as loss rates during stable times may be lower than normally expected. During stable times, a longer time horizon would be considered to incorporate higher loss rates that could occur if the portfolio quality changed during a recession.

While institutions may take recessions and growth periods into account, guidance states that a consistent loss horizon should be applied to the ALLL, making these periodic adjustments to the loss horizon difficult to defend. Instead, institutions should select a loss horizon that best fits their loss experience and consider making changes to qualitative factor adjustments as warranted.

Another critical consideration is whether to apply a common historical loss across all segments of the portfolio or to use unique loss rates for each segment. [Guidance](#) states there should be a "...historical loss rate for each group of loans with similar risk characteristics in its portfolio based on its own loss experience for loans in that group..." Unless each segment has behaved similarly and has similar risk, each segment will require a unique loss rate.

Furthermore, each segment may use a unique time horizon if its loss experience differs from the rest of the portfolio. [Properly segmented pools](#) using reflective loss horizons will be more accurate than a common loss horizon or loss rate.

Smaller institutions or smaller portfolio segments lend themselves to a historical loss calculation, given the availability of data and ease of use. Historical loss is generally sufficient, provided it incorporates a loss horizon

HISTORICAL **LOSS** (CONT.)

WHITEPAPER:

Find out more about accounting for purchased portfolios in this paper:

[Accounting for Purchased Loans: Easier Said than Done](#)

that captures losses incurred from the appropriate economic environment and risk profile.

In calculations encompassing mergers and acquisitions, institutions should follow FAS 91 guidance which can incorporate existing historical loss methodologies or a different rate if reasons can be documented and justified.

MIGRATION ANALYSIS

RECENT POLL:

Why are many financial institutions not using migration analysis?

[See the results](#)

[Migration analysis](#) is a method for determining historical loss and has received considerable attention from both institutions and their regulators. Larger institutions have been using various forms of migration analysis, while smaller institutions have generally [lacked the significant data warehouse](#) required to accurately run scenarios. However, increasingly, regulators have been asking institutions to consider migration, prompting many institutions to investigate data system improvements.

There are several methods for migration analysis, and regulators have been reticent to define migration, leaving it open to interpretation. Essentially, migration tracks how loans in the portfolio migrate to loss over a prescribed time period, without the addition of new loans to diffuse losses.

A proper migration analysis requires a portfolio to be segmented by loan segmentation code and then further sub-segmented by characteristics such as risk rating, risk level or payment delinquencies to accurately calculate a loss rate. Using risk level, migration would track the performance of pass loans for a period of time and calculate the loss rate of those pass loans incurred over a certain horizon. Reserves could be calculated at the [sub-segmented risk level](#), or loss rates could be aggregated at the segment level for the reserve.

There are a number of complications with implementing migration, the biggest of which is data. Most institutions lack the system data for loans as well as charge offs and recoveries beyond one year and may be unable to develop the loan-level data warehouse needed to store and process the data. Loan-level data points to considered are

- Borrower
- Loan number

MIGRATION ANALYSIS (CONT.)

DID YOU KNOW?

[Sageworks ALLL](#) allows users to choose from different loss measure methods and start gathering data for the transition into migration analysis.

- Current balance
- Risk rating/risk level
- Loan segmentation code
- Charge offs and recoveries over the life of the loan

Migration can be performed with as little as one year's data, but an analysis of the portfolio may require two or three years' data. Once the data is compiled, institutions face the challenge of developing and validating models. In the age of Sarbanes-Oxley and Dodd Frank, loss models, especially proprietary spreadsheet models, face increasing scrutiny from auditors and regulators due to model risk.

And the final challenge with migration analysis is its inapplicability for small portfolios, at small institutions or larger institutions. [Pools must be statistically large](#) enough to avoid loss-rate anomalies.

The benefit of migration analysis for institutions is its accuracy and defensibility. Migration analysis could result in a higher reserve than using historical loss, but it may be more accurate since it factors in the risk profile during the loss horizon and does not allow for new originations to average out losses.

Additional Whitepaper Available:
To learn more about some of the challenges with migration analysis, as well as some of the benefits, download the whitepaper:
[Pros and Cons of Migration Analysis](#)

PROBABILITY OF DEFAULT / LOSS GIVEN DEFAULT ANALYSIS

PD/LGD analysis is a method used by generally larger institutions to calculate expected loss. A probability of default (PD) is already assigned to a specific risk measure, per guidance, and represents the percentage expectation to default, measured most frequently by assessing past dues. Loss given default (LGD) measures the expected loss, net of any recoveries, expressed as a percentage and will be unique to the industry or segment.

When combined with the variable exposure at default (EAD) or current balance at default, the expected loss calculation is deceptively simple:

$$\text{Expected Loss} = \text{EAD} \times \text{PD} \times \text{LGD}$$

While the equation itself may be simple, deriving the variables takes time and considerable analysis. PD and LGD represent the past experience of a financial institution but also represent what an institution expects to experience in the future. PD is typically calculated by running a migration analysis of similarly rated loans, over a prescribed time frame, and measuring the percentage of loans that default. That PD is then assigned to the risk level; each risk level will only have one PD percentage.

LGD measures the net loss percentage of those loans that defaulted within an industry or segment. An accurate LGD variable may be difficult to obtain if portfolio losses are different than expected or if the segment is statistically small. Industry LGDs are available from third party vendors, if necessary. The positive is that PD and LGD numbers are typically valid throughout an economic cycle but should be re-evaluated periodically or in the event of economic recovery or recession, merger or significant changes in portfolio composition.

PROBABILITY OF DEFAULT / **LOSS** **GIVEN DEFAULT ANALYSIS (CONT.)**

The main benefit to financial institutions using PD/LGD is the simple calculation: the FAS 5 general reserve can be easily calculated within simple models that create directionally consistent expected loss numbers. That consistency contributes to the use of this method among institutions.

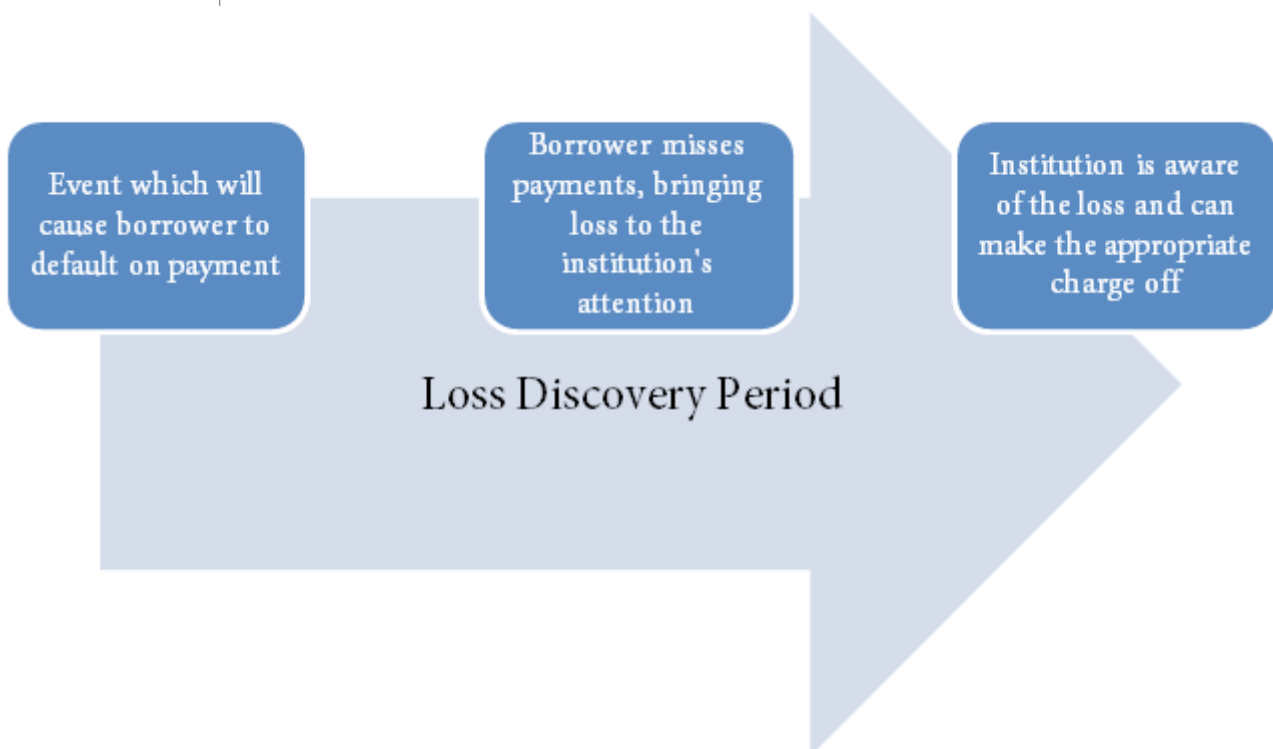
It also ties the risk rating process directly to the ALLL calculation via the PD. If actual net losses are not in line with predicted losses, a financial institution would need to determine if the credit review process routinely over- or understates customer risk ratings.

LOSS DISCOVERY METHOD

Loss Discovery Method is slight variation to the historical loss and migration analysis methods and uses an additional factor: time. It measures the time between

1. when an institution recognizes a customer cannot meet his or her obligations and
2. when a charge-off occurs.

Financial institutions may have thousands of customers, which can be difficult to manage. Consequently, performing commercial customers may only contact the institution annually, typically during an annual review, and may not submit financial information with frequency. Assuming a one-time annual contact, it could take an institution two years to identify a borrower on the verge of default. During this two-year period, the institution is incurring a risk of loss.



LOSS DISCOVERY METHOD (CONT.)

ADDITIONAL RESOURCE:

Library of regulatory guidance, including information on calculating the allowance, stressing the portfolio, rating risk and analyzing credits

[Access the library](#)

Consumer loans may have a loss discovery period of as little as six months because monthly payments would allow a financial institution to identify loss within one year.

Loss discovery method mitigates risk by applying a factor to the historical and qualitative risk factors equal to the discovery period. Discovery periods vary across product types but may range from six months to two years. Assuming a two-year discovery period, the combined historical loss and qualitative rates would be multiplied by two before being multiplied against the pool balance. A six-month discovery period would multiply that combined rate by .5.

$$\text{(Historical Loss Experience + Adjustments)} \times \text{Loss Discovery Period} \times \text{Loan Balance} = \text{FAS 5 Allowance Estimate}$$

Developing discovery periods requires strong credit and loan administration teams to assess discovery periods. More than just evaluating customer contact and its effect on recognizing default and loss, it will also require analysis of the Watchlist and credit review processes and their ability to discover additional risk. Teams will need to evaluate not just initial delinquencies but repeat delinquencies to uncover patterns. The frequency of covenants and their timely receipt should be considered as well.

For these reasons, along with the loss discovery method introducing more subjectivity into the allowance calculation and the process being more time intensive, most institutions steer away from this option for the determination of loss rate percentages, preferring one of the other described methods.

CONCLUSION

A proper historical loss method is an important part of the allowance calculation because FAS 5 reserves are generally the largest portion of the overall allowance. It receives the most scrutiny from Boards of Directors and regulators, as well, meaning an institution's methodology must be defensible and consistently applied. To satisfy all parties, documented research that engages members of risk management, credit and finance in the selection of a loss measure is important so the method selected does not over- or understate the reserve.

ABOUT SAGEWORKS & THE AUTHOR

Sageworks (www.sageworks.com) is a financial information company working with financial institutions, accountants and private-company executives across North America to collect and interpret financial information. Thousands of bankers rely on Sageworks' credit risk management solutions to streamline credit analysis, risk rating, [portfolio stress testing](#), loan administration and [ALLL calculation](#). Sageworks is also an industry thought leader, regularly publishing [whitepapers](#) and hosting webinars on topics important to bankers.

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ALLL

[Sageworks ALLL](#) is the premiere automated solution for estimating a financial institution's reserve. It helps bankers

automate their ALLL process and increase consistency in their methodology, making it defensible to auditors and examiners. Sageworks' risk management consultants also assist clients with the implementation of their ALLL models and guidance interpretation. To find out more, visit www.sageworksanalyst.com.

Robert Ashbaugh is a senior risk management consultant at Sageworks and is responsible for assisting financial institutions with their ALLL and stress testing programs. Rob has more than twenty years of capital markets and commercial banking experience, as both a portfolio manager and risk manager, with a primary focus on mortgage-backed securities and commercial loans. Among his responsibilities were monthly ALLL calculations, institutional and concentration stress testing and risk analytics. He is a past holder of the Series 7, 52 and 63 licenses.

Rob received his bachelor's degree in both economics and international business from Temple University.

ADDITIONAL RESOURCES

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