THE BASICS OF
VINTAGE ANALYSIS

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EXECUTIVE SUMMARY

The Financial Accounting Standards Board (FASB) is expected to issue a [final standard](#) of their proposed current expected credit loss ([CECL](#)) model during the first half of 2016. In order to comply with the proposed changes, institutions will need to examine, alter or change their allowance for loan and lease losses (ALLL) methodology. The CECL guidance is not prescriptive, and allows for a number of methodologies to be used in order to fulfill the requirements. Vintage analysis is an ALLL calculation methodology that has been suggested as being the possible new minimum standard for CECL compliance.

This whitepaper covers the background on CECL, how vintage analysis fits into the picture and then explains the basics and an overview of the methodology's application.

One of the main impetuses for changing the current U.S. GAAP supported ALLL model is the FASB's view that reliance on historic or incurred losses in reserve calculations does not allow an institution to reach a sufficient reserve in a timely manner.[1] Many, including Federal Reserve Board Chief Accountant Steve Merriett, cite this delayed recognition of credit losses as a factor in so many institutions having inadequate reserves ahead of the financial crash of 2008.[2] Rather than incurred losses, going forward allowances will be based on the CECL model, defined as,

> "A current estimate of all contractual cash flows not expected to be collected incorporating: internally and externally available information; information about past events, current conditions, and reasonable and supportable forecasts; and quantitative and qualitative factors specific to borrowers and the economic environment including underwriting standards."[3]

Under the CECL model, there will be no triggers, thresholds or smoothing mechanisms allowed in loss calculations; the shift here, is a movement to recording losses as they become expected. If a loss is expected, it should be recorded when that loss becomes known, even if this means basing this expectation on forward looking factors.

When discussing forward looking factors, it is important to note that CECL is not an attempt to capture unexpected or remote catastrophic events, which will continue to be accounted for under regulatory capital. The focus is on expected losses and changes to allowance calculations that will allow an institution to better account for these types of losses.

AN INTRO TO **VINTAGE ANALYSIS**

Vintage analysis accounts for expected losses by allowing an institution to calculate the cumulative loss rates of a given loan pool and in so doing, to determine that loan pool's lifetime expected loss experience. This includes a reasonable approximation of probable and estimable future losses gleaned by applying historical gross charge-off information to forward looking qualitative and environmental factors.

Introduction to Vintage Analysis

Vintage analysis is a method of evaluating the credit quality of a loan portfolio by analyzing net charge-offs in a homogenous loan pool where the loans share the same origination period. The method is widely used in the analysis of retail credit card and mortgage portfolios, but as Michael L. Gullette, VP Accounting and Financial Management at the American Bankers Association notes:

> "The method could become a minimum requirement to support the allowance for loan and lease losses (ALLL) estimate under the Financial Accounting Standards Board's (FASB) current expected credit loss (CECL) model. Other analyses may be more appropriate than vintage analysis as a basis for the ALLL estimate, however, because vintage analysis allows for review of loan activity from the beginning of the life of the loan (origination) to the end (pay-off or charge-off), it will likely be the minimum requirement".[4]

Vintage refers to origination period and is used synonymously. EY's Pawel Siarka notes, the term "vintage" is borrowed from the world of wine in that wine connoisseurs traditionally evaluate a bottle on both its species of grapes and the year in which the grapes were harvested.[5] This distinction is an apt and important one as vintage analysis requires appropriate segmentation and stratification consistent with the requirements of ASC 450-20 (FAS 5) loan

pool evaluation, with the added element that the loans in question share a common origination period.

Including origination period in the stratification of a given loan pool allows for a more accurate estimate of the unadjusted historical lifetime loss experience because the entire life of the loan pool is included in the analysis. In other evaluation methods, the inputs and statistics are not lifetime data points and instead, cover a finite period of time. These gaps in time omit information necessary to analyze lifetime loss experience.

"This [CECL] is not a tweak, and we do not believe that existing methodologies are OK without any adjustment."

- Steve Merriett, Chief Accountant, Federal Reserve Board

VINTAGE ANALYSIS **APPLICATION**

The table below illustrates the usefulness of vintage analysis as a forecasting tool. The example shows four, four-year loan pools separated into vintages and calculates the life of loan loss experience of each group in the cumulative loss rate column. This is done by dividing each year's net charge-offs by the original principal balance (some may use original principal and interest, for simplicity, principal alone is used below). The respective vintage's original principal balance remains the denominator in each annual calculation, as it references the specific vintage's original balance. The loss experience of this original balance is tracked annually and summed over the life of the loan leaving a cumulative, life of loan loss rate based on historic averages. For loans originating in 2009, the total life of loan loss rate is 3.19% and the 2010 rate is 3.49%. The goal is to use the existing data to forecast future loss rates, denoted in the blue shaded sections of the chart.

Origination Year/ Vintage	Year 1 Loss Rate	Year 2 Loss Rate	Year 3 Loss Rate	Year 4 Loss Rate	Cumulative Loss Rate / Life of Loan Loss Experience
2009	0.40%	1.05%	1.42%	0.32%	3.19%
2010	0.60%	1.08%	1.41%	0.40%	3.49%
2011	0.48%	1.35%	1.50%	0.52%	3.85%
2012	0.68%	1.50%	1.80%		

In addition to life of loan loss data, primary drivers like macroeconomic indicators of qualitative factors can be added to the expected loss calculation to reach a forecast supported by both quantitative and qualitative data points. For example, by identifying the unemployment rate as a primary driver of changes in the international, national, regional and local conditions qualitative risk factor (Q factor), you can look for trends that correlate to historical loss experience. If an increase in the unemployment rate leads to an increase in charge-offs six months later, this information can be factored into forward-looking loss projections. Additionally, identifying correlations between different factors is similar to Q factor adjustments under the current, incurred loss framework.

The goal is to express the impact of changes in external factors while incorporating analysis of where the loan pool is in its loss history. In our example, life of loan loss experience shows that a forecasted increase in the unemployment rate, (taken from CBO or Treasury Department estimates, for example), will have a bigger impact on loans in their second and third years than on loans near maturity in year four.

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VINTAGE ANALYSIS **APPLICATION**

The table below illustrates vintage analysis using six-year life of loan and loss rate periods. Choose a common origination period (or vintage) and start with the original balance of a homogenous loan pool. In the example, we see the original balance of the 2009 vintage as $302,107,845. Over the next 6 years, life of loan loss experience data is calculated by dividing each year's net charge-offs (charge-offs minus recoveries) by the original principal balance.

Commercial Vintage Analysis

Run Date: 12/11/2015

Year of Origination	Original Balance	Year 1 Loss Rate	Year 2 Loss Rate	Year 3 Loss Rate	Year 4 Loss Rate	Year 5 Loss Rate	Year 6 Loss Rate	Cumulative Loss Rate
2009	302,107,845.00	0.0029%	0.4802%	0.3842%	0.3029%	0.2495%	0.1168%	1.5365%
2010	269,460,263.00	0.0011%	0.0298%	0.3105%	0.3562%	0.2891%		0.9867%
2011	237,120,312.00	0.0009%	0.1834%	0.2906%	0.4717%			0.9466%
2012	332,297,844.00	0.1501%	0.1248%	0.2731%				0.5480%
2013	358,104,265.00	0.0936%	0.2173%					0.3109%
2014	371,608,926.00	0.1419%						0.1419%

The goal is to gain information on how these losses are occurring and to better discern trends; the loss rate data should correspond with quantitative and qualitative factors as well as the institution's underwriting standards and any other relevant economic variables. By seeing trends, the institution should be well placed to make adjustments to underwriting, loan pricing and other areas to increase loss mitigation efforts. Institutions can also reserve an amount more reflective of actual loss experiences than by simply relying on disaggregated historical loss rates.

In the following two charts from the Federal Reserve Bank of St. Louis' "FedPerspectives: An Overview of the Current Expected Credit Loss Model (CECL) and Supervisory Expectations", we see an example of vintage analysis with average loss rates and cumulative loss rates for four vintages, each with a four-year lifespan.

Three of them - 2009, 2010 and 2011 - have completed their cycles and have corresponding loss rate data, while the 2012 vintage has one year to go. From the Average Loss Rate By Vintage chart, we see that most losses occur in years 2 and 3. Despite 2012 having a higher loss experience, we can identify the larger trend and see that those losses have most likely peaked based on historical experience. It is an example of how historical life of loan data can help with forward-looking reserve and capital planning.

Average Loss Rate By Vintage

Cumulative to-date Loss Rates by Vintage
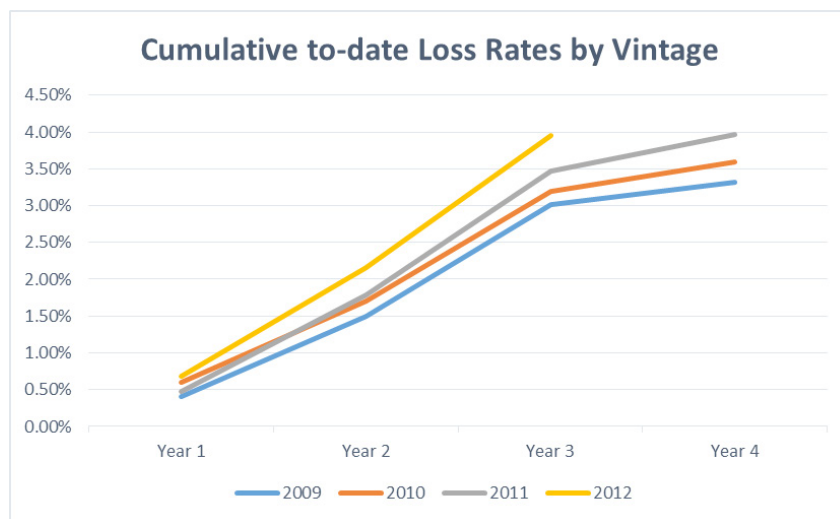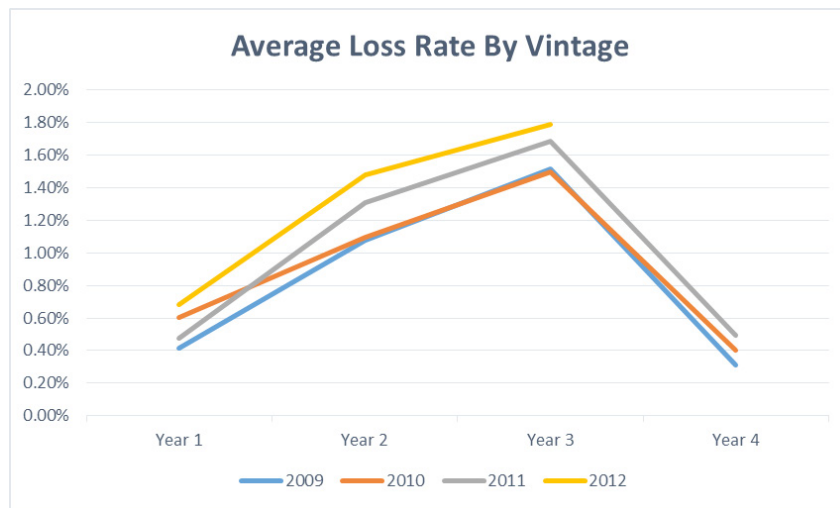
Charts accessed via https://bsr.stlouisfed.org/perspectives/final_fedperspectives_cecl_october%202015.pdf

Further, if there is an anomaly, the institution can quickly isolate it and respond accordingly by adjusting underwriting standards, loan pricing, loss mitigation efforts or relevant qualitative adjustments. In the Cumulative to-date Loss Rates by Vintage chart above, we see that 2012 has the same loss percentage (4%) in three years as 2011 had in four. By comparing to historical trends, an institution can estimate the loss experience to come, and in doing so, more quickly react, resulting in a more accurate reserve.

Staying with the example in the above charts, an important distinction and comparison to a traditional historical loss rate calculation,
(Loss Rate = [Charge offs – Recoveries]/Average Loan Balance) can be made. In a historical loss rate analysis, reserve decisions are typically made on an eight- or twelve-quarter lookback period, although this will vary by institution depending upon what time horizon they deem appropriate.[6] In the first chart example, the fact that most losses occur in years two and three and then sharply decline would not be evident until year four quarterly data trickles into the calculation, replacing older quarterly data and suggesting a higher necessary reserve. Lifetime data is key to determining an accurate expected loss rate.

VINTAGE ANALYSIS **CHALLENGES**

Many institutions currently use a historical loss rate method to estimate their ALLL and have processes in place to collect and analyze annual charge-off data. The new requirements of the CECL model may compel institutions to change current processes, collect different data and/or retain data for longer periods of time. For example, if a current core processing system houses two or three years (or 13 months in many cases) of historical loan-level data, institutions may need to begin storing legacy data separately in anticipation of CECL to ensure they have an adequate range of lifetime loan-level loss data.

In addition to broader data retention requirements, calculating reserves for a portfolio with a multi-year expected loan life could increase complexity. An ALLL estimate for a portfolio of loans with an expected life of four years will necessitate four different ALLL estimates – one for each vintage.[7] Finally, disclosures related to credit quality may need to expand to address each vintage. Using the first example, a portfolio with an expected life of four years could also see disclosure requirements increase four-fold or more. Complexity is one reason the Federal Reserve is advising institutions to start planning well ahead of the CECL implementation date and document all changes early.

A lack of familiarity with vintage analysis could be an initial impediment to widespread adoption. In a poll conducted by the Federal Reserve Bank of St. Louis on October 30th, 2015, 81 percent of respondents were either not familiar or only somewhat familiar with vintage analysis.[8] Despite an expected first quarter 2016 issuance of a final CECL standard, industry perceptions that implementation will not take effect until 2019 or beyond coupled with unfamiliarity, reluctance to change as well as switching costs could prompt low, initial adoption of alternative evaluation methods like vintage analysis.

CONCLUSION

The CECL method will move the ALLL calculation away from the incurred loss model toward a current estimate of all contractual cash flows expected to be uncollectable. As a result, forward looking calculations will be factored in to ALLL calculations. CECL may not require complex modeling for community banks and credit unions, so any reasonable approach, like loss-rate, probability of default, discounted cash flow, roll-rate or provision matrix methods using loss factors may be appropriate to use as long as the method reflects actual risk of default. Vintage analysis, with its focus on the lifetime of a loan, from origination to payback or charge-off, may become a minimum requirement when calculating, and documenting an ALLL under the new guidance.

While not overly complicated, vintage analysis' expanded data retention and supporting factor requirements could necessitate changes to current workflows and practices. Banks and credit unions will need a way to document all final reserve calculations, including qualitative and environmental factors applied to quantitative reserve amounts. This process could take time and may compel a best practice of collecting data and implementing process changes ahead of anticipated CECL implementation dates. The goal of any change is to help institutions improve the accuracy of their allowance calculations. If the allowance mirrors the true risk in the current portfolio, institutions can maximize their investable capital in low allowance periods and adequately protect themselves when economic conditions are less favorable.

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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Brandon Russell is an Account Executive in the Risk Management Solutions group at Sageworks, where he is primarily focused on helping community banks and credit unions manage their allowance for loan and lease losses (ALLL) provisions. Prior to joining Sageworks, Brandon served in various business development roles at startup companies Attentive.ly and Management C.V., as well as Ipreo, a financial information, data, and software company serving corporate investor relations, private capital markets, and the institutional buy-side and sell-side. He received his master's degree from Georgetown University and his undergraduate degree from George Mason University.

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