ALLL and the New Estimate of Loan Losses

An update on the proposed impairment model and improving the measurement of credit losses
Provisioning for loan losses consumes a significant portion of the banking industry’s net operating revenue.

Loan Loss Provision as % of Net Operating Revenue
(all FDIC-Insured Institutions)

Source: FDIC
Despite the rapid provisioning during the crisis, the ratio of reserves to noncurrent loans continued to fall.

Source: FDIC
Agenda

1. Brief Review of Existing Guidance
2. Overview of FASB’s Proposed Current Expected Credit Loss Model
3. Analytical Considerations and Loan Loss Reserves
4. Stress Testing and Reserves
1

Brief Review of Existing Guidance
An appropriate ALLL, in accordance with GAAP, should reflect an estimate of probable credit losses.

Estimated credit losses means an estimate of the current amount of loans that is probable the institution will be unable to collect given facts and circumstances as of the evaluation date. Thus, estimate credit losses represent charge-offs that are likely to be realized for a loan or group of loans.

- Interagency guidance, 2006
The principal sources of guidance on GAAP accounting for credit losses are FAS 5 and FAS 114

Measurement of Estimated Credit Losses

Loan Portfolio

Impaired?

No → FAS 5

Yes → FAS 114

Unallocated

Segmented Risk Pools

PV of FCF
Mkt. Price
FV of Coll.

Portion of the ALLL that is not attributed to specific segments of the loan portfolio
In 2009, FASB codified the accounting standards for recognition of credit losses

Accrue an amount that appears to be a better estimate than others within a range of estimates

Accrual vs. Disclosure
- If it is “probable” that a loss will incur and the amount can be reasonably estimated, it should be accrued in the financial statements
- If it is “reasonably possible” that a loss will incur, it should be disclosed in the notes without recognition in the financial statements
- If the possibility of loss is “remote”, disclosure is not required

A loan is impaired when it is probable that all amounts due from a loan are impaired

To determine whether a loan is impaired, the institution should apply its normal loan/credit review process

Impairment loss = Carrying amount of the loan, less:
- Fair value of the collateral (collateral dependent loans); or
- PV of expected future cash flows from a loan; or
- Observable market price of the loan
The incurred loss approach is believed to interfere with the timely recognition of credit losses

Concerns Over the Current Incurred Loss Model

» It prevents banks from provisioning for an impaired asset until a “triggering event” occurs

» Banks must wait until the triggering event has already occurred before they recognize the loss

» By waiting, the model precludes banks from provisioning for risks the bank can reasonably anticipate to occur

» It leads to pro-cyclicality and delayed loss recognition

» Changes in the probabilities of loss and of loss exposures should be reflected in the ALLL

» The OCC supports FASB’s proposed expected loss model over the current incurred loss impairment approach
Overview of FASB’s proposed Current Expected Credit Loss Model (CECL)
Evolution of a new impairment model

Over the last five years, the accounting community has worked to provide more actionable information about the expected credit losses on financial assets.

Evolution of Subtopic 825-15, Financial Instruments – Credit Losses
(superseding ASC 310-10 (SFAS 114) and 450-20 (SFAS 5) - among others)

- **November 2009**
  - FASB published Exposure Draft, adding further support for a forward-looking measure of ECL

- **January 2011**
  - FASB and IASB published a supplementary document introducing “Good Book” and “Bad Book” distinction

- **December 2012**
  - FASB published the Exposure Draft “Proposed Accounting Standards Update, Financial Instruments – Credit Losses.” Introduced the CECL.

- **May 2013**
  - Comment period ended

**Evolution**

- **October 2008**
  - Joint effort b/w FASB and IASB to address reporting issues arising from the global financial crisis

- **July 2009**
  - Financial Crisis Advisory Group (FCAG) published report on delayed recognition of losses and complexity with different impairment approaches. Included forward-looking information.

- **May 2010**
  - FASB published a proposed ASU to ECL
    - Remaining life
    - Cash flow based
    - Economic conditions remain unchanged

- **July 2012**
  - FASB and IASB jointly released the “three-bucket” impairment model whereby credit instruments would have had different measurement approaches and migration criteria across buckets

*Current proposal; IASB had not concluded deliberation on credit losses at the time of release*

Source: FASB
The proposed accounting standards update reflects several core objectives

<table>
<thead>
<tr>
<th>Objectives of the proposed update</th>
</tr>
</thead>
<tbody>
<tr>
<td>» More timely recognition of credit losses</td>
</tr>
<tr>
<td>» Greater transparency regarding the expected credit losses</td>
</tr>
<tr>
<td>» Improved understanding of the realizability of assets and the inherent credit risk in the portfolio</td>
</tr>
<tr>
<td>» Improved understanding of credit risk changes that have taken place during the period</td>
</tr>
<tr>
<td>» Improved understanding of purchased credit-impaired financial assets</td>
</tr>
<tr>
<td>» Improved understanding and comparability of interest income</td>
</tr>
<tr>
<td>» Enhanced consistency when credit impairment is measured at the individual asset level as compared with at the portfolio level</td>
</tr>
</tbody>
</table>

Source: FASB
Working towards these standards will require a blend of judgment and empirical evidence

» The allowance for credit losses (ACL) should be management’s best estimate of the PV of all contractual cash flows that are not expected to be collected on an asset or group of like assets as of the financial statement date
  - The timing and amount of the CFs is not required under the new proposal

» The ECL should take into account:
  - Historical loss experience (NCOs) with similar assets – need to appropriately segment
  - Current conditions – prevailing credit cycle and business environment (including macroeconomic factors, collateral values, borrower behavior, underwriting standards, etc.)
  - Reasonable and supportable forecasts (**New**)
  - Time value of money, either explicitly or implicitly

Source: FASB
The approach to estimating credit loss is not “one-size-fits-all,” but there are minimum requirements

» Specific approaches are not mandated but should be consistent and appropriate for the portfolio it is applied to

» Minimum requirements (for historical statistics):
  – Consistent definition of default
  – Definition of loss (i.e., amount charged off)
  – Method for weighting historical experience (i.e., volume-weighted or equal-weighted)
  – Method for adjusting loss statistics for recoveries
  – How expected prepayments affect the allowance for ECL
  – Incorporating the time value of money

» Default probabilities and loss severities are not linear, therefore it is inappropriate to “gross up” a one-year measure over the remaining term

Source: FASB
Example of non-linearity of default probabilities using *cumulative* measures

A cumulative EDF credit measure gives the probability of default over that time period. For example, a five year cumulative EDF credit measure of 9.64% means that that company has a 9.64% chance of defaulting over that five year period (perhaps the remaining life of the loan).
A common measurement approach includes the use of PD, LGD, and EAD along with credit adjustments.
Institutions will need to estimate expected loss over the life of the loan, and also account for current conditions

\[
\text{EL} = \text{PD} \times \text{LGD} \times \text{EAD}^* 
\]

- On average, the amount a lender could potentially lose depends on three things...
  - **Expected Loss**
  - **Probability of Default (PD)**
  - **Loss Given Default (LGD)**
  - **Exposure at Default (EAD)**

  \[
  \text{EL} = \text{PD} \times \text{LGD} \times \text{EAD}^* 
  \]

  - $45M
  - 3% likelihood
  - $5MM
  - $30¢ on the dollar

- These estimates will need to be further adjusted for current economic conditions and the forecasted direction of the economy

- In addition to time horizon, another dimension for consideration is the PD measurement (i.e., “Point-in-Time” (PIT) or “Through-the-Cycle” (TTC))

*For ALLL purposes, the EAD is typically the outstanding loan amount as of the financial reporting date. A different but related reserve is held for unfunded commitments.*
Moreover, risk measures can be expressed in terms of “Point-in-Time” or “Through-the-Cycle”

Median EDF for “B” rated companies

Median: 1.35%

Feb. ‘09: 9.92%

Aug. ‘13: 0.31%

Source: Moody’s CreditEdge
Recent Developments
Decisions reached to date during deliberations of CECL (through Sept. 27, 2013)

Clarifications Regarding an Entity’s Estimate of Expected Loss

» Revert to historical average loss experience for future periods beyond supportable forecasts

» Consider prepayments but not extensions, renewals, and modifications (other than TDR)

» Recognize risk of loss, even if remote, unless amount of loss would be zero

» Can use loss-rate models, PD methods, or a provision matrix in addition to DCF models

» Final guidance (TBA) will include guidance on “reasonable and supportable forecasts”
While CECL brings noted improvements, FASB’s new impairment model has been met with some dissenters

Commonly Expressed Concerns

» The operational impact could be significant

» Stakeholders, such as regulators, accountants, investors, and the SEC, do not always share a common interest

» Introduces a “life-of-loan” concept which is said to conflict with the conceptual framework

» A forward-looking measure may be very difficult to support the estimates

» The impact on current allowance levels
    - An increase of 30% to 300% to the allowance, in addition to a potential one-time increase
    - At a time when banks are adding capital in order to meet new regulatory requirements

» Favor for an alternative, such as a Banking Impairment Model (BIM)
How does FASB’s CECL align with the IASB’s proposed Expected Credit Loss Model?

<table>
<thead>
<tr>
<th>Common Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>» Removal of the ‘incurred loss’ trigger for recognition</td>
</tr>
<tr>
<td>» Lifetime ECL are the expected shortfalls in contractual cash flows</td>
</tr>
<tr>
<td>» An estimate of ECL will reflect the probability that a credit loss might occur</td>
</tr>
<tr>
<td>» The estimate will be based upon use of the same information</td>
</tr>
<tr>
<td>» The amount of ECL should be the same for financial instruments that have deteriorated significantly in credit quality</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Divergent Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>» The IASB’s model includes three stages:</td>
</tr>
<tr>
<td>1. No significant deterioration (12 months ECL are recognized)</td>
</tr>
<tr>
<td>2. Significant deterioration (lifetime ECL are recognized)</td>
</tr>
<tr>
<td>3. Objective evidence of impairment (lifetime ECL are recognized)</td>
</tr>
<tr>
<td>» The FASB CECL has no distinction for deterioration in credit quality; all measured at lifetime ECL</td>
</tr>
<tr>
<td>» Timing difference in the recognition of ECL</td>
</tr>
</tbody>
</table>


Remains a joint project between FASB and IASB, as they work together to deliberate on comment letters and potentially align on divergent views.

Source: IIFRS and IASB
3

Analytical Considerations for Loan Loss Reserves
As previously mentioned, the ALLL consists of three distinct components

- Specific reserve for non performing loans
- Expected losses for performing loans
- Credit risk adjustment applied to expected losses
The impairment for nonperforming loans is usually on an asset-specific basis

» Asset-Specific Reserve (ASC 310-10-35/ FAS114)

» Estimate periodic cash flows and discount at contract rate of interest.
  - Large exposures: Estimate on a scenario basis
  - Smaller exposures: Estimate conditional probability of remaining on non-accrual, given amount of time already on non-accrual-from historical data
Considerations for estimating PD as it relates to the estimate of EL for allowance purposes

» Expected Losses = PD x LGD x EAD over contractual term

» Contractual term could be shortened based on expected prepayment ("expected life")

» PD could be developed from historical data associated with current rating status incorporating transitions to other ratings

» Evaluate Expected Default Frequency (EDFs) (PIT) vs. (TTC) PDs

» Expressed as cumulative PD over expected life
Similarly, the estimate of LGD for loan loss reserving has unique attributes unto itself

- LGDs for allowance are different from LGDs for regulatory capital
- Not downturn LGDs
- Exclude workout costs
- Exclude AIR (accrued interest receivable)
- Can use overall average discount rate, possibly based on contractual rate
There are also several treatment options for EAD

» EAD for on-balance sheet exposures = outstanding balance

» EAD for revolving credits based on unused portion

» Add Loan Equivalent (LEQ) factor to EAD

» Can either include this in the Allowance for Loan Loss Reserves or Allowance for Lending – Related Commitments
Historical averages alone may not be sufficient, warranting a credit risk adjustment to the EL

» Historical averages may not adequately consider the current point or forecasted direction of the economic cycle

» Credit risk adjustment modifies the base EL to reflect reasonable and supportable forecasts about the collectability of future cash flows

» Management evaluates the current point in the economic cycle, as well as other important current credit indicators such as borrower behavior and collateral values, how current underwriting standards compare with those in the base EL, and recent trends in economic conditions
# Historical variability of PDs

<table>
<thead>
<tr>
<th>Historical Rating agency data</th>
<th>Aaa</th>
<th>Aa</th>
<th>A</th>
<th>Baa</th>
<th>Ba</th>
<th>B</th>
<th>Caa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean PD</td>
<td>0%</td>
<td>0.01%</td>
<td>0.03%</td>
<td>0.21%</td>
<td>1.12%</td>
<td>5.16%</td>
<td>22.56%</td>
</tr>
<tr>
<td>One Standard Deviation</td>
<td>0%</td>
<td>0.08%</td>
<td>0.08%</td>
<td>0.31%</td>
<td>1.11%</td>
<td>3.47%</td>
<td>16.49%</td>
</tr>
<tr>
<td>Coefficient of Variation CV= $\sigma/\mu$</td>
<td>0%</td>
<td>0%</td>
<td>200%</td>
<td>146%</td>
<td>99%</td>
<td>67%</td>
<td>73%</td>
</tr>
<tr>
<td>LEQ Distribution</td>
<td>6%</td>
<td>4%</td>
<td>25%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>5%</td>
</tr>
</tbody>
</table>

| Weighted average upper bound (1$\sigma/\mu$) | 120% |
| Weighted average lower bound (0.5$\sigma/\mu$) | 60% |
Construct scorecard

» Factors to be considered:

» Portfolio regional and industry concentrations

» Current point in economic cycle (PIT vs. TTC indicators---Credit Edge and RiskCalc)

» Forecast of macro factors

» Underwriting characteristics of current portfolio
Apply scorecard result to range
Fed Reserve Survey Lending Standards

Report covers the percentage of firms surveyed who state that their lending standards were tighter in the current quarter vs. prior quarter.
Charge-offs follow tightening

Tighter Lending Standards Lead C & I Chargeoffs by 1 year

Adjusted $R^2 = 82\%$
Covenant quality index

» Historical information on covenant quality can also help determining underwriting standards embedded in current portfolio (e.g., change of control, structural subordination, cash leakage, leveraging)

» Moody’s covenant quality index: score summarizes protection to bond holders ranging - CQ1 (strong) to CQ5 (weak)
Moody’s covenant quality

Covenant Quality Index

January 2011 to August 2013
4 Stress Testing and Reserves
Stress testing and Reserves

- Stress testing (CCAR) evaluates impact of macroeconomic factors on bank profitability and on regulatory capital ratios

- Stress tests have an impact on increased PDs, accelerating downward rating transitions, higher loss severities, and increased likelihood of draw down on unused commitments

- Maximum losses obtained from stress tests should be significantly above the maximum credit risk adjustment
Credit portfolio migration under stress

Credit Portfolio Migration Under Stress

Risk Rating

Rating Distribution

Base Credit
Expected
Recession

Loss
Reserve requirement under stress

Reserve Requirement Under Stress

- **Expected**
- **Recession**

<table>
<thead>
<tr>
<th>Risk Rating</th>
<th>Reserves</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
RAROC considerations

- Economic capital and risk adjusted return on economic capital has been the guiding criteria since the mid-90s as portfolio measurement and management have advanced
  - EDF measures (CreditEdge/Credit Monitor/RiskCalc)
  - Portfolio models (Risk Frontier/Portfolio Manager)
- Regulatory capital, stress tests, and liquidity measures now serve as constraints on return on economic capital objectives
- As Loan Loss Reserve changes become implemented, care needs to be taken that these are not part of RAROC decisions
Questions?
Christian Henkel
Director
Moody’s Analytics Enterprise Risk Solutions
christian.henkel@moodys.com
+1.212.553.4679

Mich Araten
Managing Director
Credit Risk Capital Advisory
araten@aol.com
+1.914.428.6173