CECL Quantification: Commercial & Industrial (C&I) Portfolios

March 2017
Today’s Speakers

» **Emil Lopez** is a Director in the Enterprise Risk Solutions Group, based in New York, focusing on the development of software and analytic solutions for impairment accounting (CECL/IFRS 9).
  > Prior to joining the product strategy group, Mr. Lopez led risk rating and stress testing modeling projects for Basel and DFAST institutions.
  > Mr. Lopez received his MBA from New York University and received his BS in finance and business administration from the University of Vermont.

» **Dr. Janet Zhao** is a Senior Director in Single Obligor research team. Her team conducts empirical research and develops quantitative models focused on C&I loan credit risk for Moody’s Analytics product and service offerings.
  > Her expertise covers a wide range of areas, including credit risk modeling, financial statement analysis, stress testing and portfolio management.
  > Dr. Zhao holds a PhD with a specialty in Accounting and Finance from Carnegie Mellon University and City University of Hong Kong.

Moderator

» **Anna Krayn** is a Senior Director and Team Lead, responsible for solution structuring across Moody’s Analytics products and services focusing on impairment, stress testing and capital planning solutions.
  > Prior to her current role, she was with Enterprise Risk Solutions as engagement manager leading projects with financial institutions across Americas in loss estimation, enhancements in internal risk rating capabilities and counterparty credit risk management.
  > Ms. Krayn holds a B.S. and MBA from Stern School of Business at New York University.
Welcome!

Moody’s Analytics CECL Webinar Series: Expected Credit Loss Quantification

Introduction to CECL Quantification
Tuesday, February 14, 2017 | 1:00PM EST

CRE CECL Methodologies
Tuesday, February 28, 2017 | 1:00PM EST

C&I CECL Methodologies
Tuesday, March 14, 2017 | 1:00PM EDT

Retail CECL Methodologies
Tuesday, March 28, 2017 | 1:00PM EDT

Structured Assets CECL Methodologies
Thursday, April 20, 2017 | 1:00PM EDT

To find out more about Moody’s Analytics perspectives on CECL and register for our webinar series visit:

www.moodysanalytics.com/cecl
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1. Overview of Common ECL Methodologies for C&I
2. Adapting Loss Rate Methodology
3. Adapting PD/LGD Methodology
4. Conclusions and Q&A
CECL seeks to improve the measurement and reporting on credit losses

Institutions will need to measure and record immediately all expected credit losses (ECL) over the life of their financial assets based on:

1) Past events, including historical experience
2) Current conditions
3) Reasonable and supportable forecasts

If it effects the collectability of the reported amount, it should be considered!

» Although “reasonable and supportable forecasts” are required, an entity will not need to create an economic forecast over the entire contractual life of long-dated financial assets

» Institutions will have significant discretion over how they measure expected credit losses

» ECL recorded at origination and updated at subsequent reporting dates
Most common ECL estimation methodologies for C&I Portfolios

- **Loss Rate**
  - Apply a historic loss rate percentage, either collective or individual evaluation
  - Can be applied as a cumulative rate or as a loss rate curve
  - Includes: Average charge-off method, static pool analysis, vintage analysis

- **Rating Migration**
  - Compute percentages of assets that will “migrate” to a more severe risk rating or delinquency status
  - Migration-rate percentages are applied to the balance in each category to estimate amount that will migrate to the next category
  - Aggregate total migration for each category to determine the allowance

- **PD/LGD**
  - Separates default and recovery risk, providing greater insight into the ECL estimate
  - Levered for other business processes such as loan pricing, limit setting, and risk monitoring
  - Includes Basel models, granular stress testing models, and internal PD/LGD ratings

Both statistical and qualitative analysis can be applied to any method to:

1. Reflect current environment
2. Incorporate reasonable and supportable forecasts
3. Account for life-time loss
Relevant Segmentation Dimensions for C&I Portfolios

Examples of Shared Risk Characteristics

- Risk ratings or classification
- Industry of the borrower
- Borrower Size (i.e. Total Assets or Sales)
- Loan Size
- Availability of Financial Statements
- Loan Age

Most common for C&I

- Geographical location
- Collateral type
- Loan Purpose (i.e. Leasing, Working Capital)
- Origination Vintage
- Effective interest rate
- Term

Quantitative credit risk models typically control for several of these factors
Methodology Paths for Credit Loss Estimation – Our focus today

- **Measurement Objective**
  - CECL
  - Incurred Losses
  - Stress Testing Forecasts

- **Estimation Approach**
  - Loss Rate
  - Migration Rate
  - PD/LGD

- **Relevant Risk Parameters**
  - Exposure
  - Loss Rate
  - Current/Lifetime Risk Parameter Horizon
  - Term Structure

- **Information Profile at Starting Point**
  - Balance
  - EAD/CCF
  - Historical/TTC
  - Current/PIT
  - Scenario Conditioned

- **Risk Parameter Enhancements**
  - Adjustment for Current Conditions
  - Adjustment for Future Conditions
  - Lifetime Conversion
  - Qualitative Adjustments

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- **Exposure**: Balance for on-balance sheet portion; expected draw-downs (usage) for off-balance sheet commitments
- **PD**: Probability of Default
- **LGD**: Loss Given Default
- **TTC**: Through-the-cycle measure
- **PIT**: Point-in-time measure
- **CCF**: Credit conversion factor to estimate additional draw-downs
- **Scenario Conditioned**: Reflecting economic forecasts
- **Current/Cumulative Measure**: A single measure that represents the credit exposure at the reporting date or the lifetime PD/LGD/Loss Rate
- **Discount Factor**: Used to estimate present value of expected future losses. Relevant when using risk parameter curves rather than spot/cumulative measure
Methodology Paths for Credit Loss Estimation – Our focus today

**Measurement Objective**
- Stress Testing Forecasts
- Incurred Losses
- CECL

**Estimation Approach**
- Loss Rate
- Migration Rate
- PD/LGD

**Relevant Risk Parameters**
- Discount Factor
- Exposure
- PD
- LGD

**Risk Parameter Horizon**
- Current/Lifetime
- Term Structure
- Current/Lifetime
- Term Structure
- Current/Lifetime
- Term Structure

**Information Profile at Starting Point**
- Balance
- EAD/CCF
- Historical/TTC
- Current/PIT
- Scenario Conditioned

**Risk Parameter Enhancements**
- Adjustment for Current Conditions
- Adjustment for Future Conditions
- Lifetime Conversion
- Qualitative Adjustments

**Segment: All C&I**

**Exposure** = Balance for on-balance sheet portion; expected draw-downs (usage) for off-balance sheet commitments

**PD**: Probability of Default  
**LGD**: Loss Given Default  
**TTC**: Through-the-cycle measure  
**PIT**: Point-in-time measure  
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1. Overview of Common ECL Methodologies for C&I
2. Adapting Loss Rate Methodology
3. Adapting PD/LGD Methodology
4. Conclusions and Q&A
Approach 1: Simple adjustment on historical annual loss rates

Take historical average annual loss rate and multiply by contractual maturity; Qualitative adjustments to incorporate current and future environments

<table>
<thead>
<tr>
<th>Internal Risk Rating</th>
<th>Regulatory Rating</th>
<th>Balance</th>
<th>Avg. Annual Loss Rate</th>
<th>Avg. Remaining Maturity (Yrs)</th>
<th>Lifetime Loss Rate</th>
<th>Qual. Factor Adj. (Relative)</th>
<th>Adj. Lifetime Loss Rate</th>
<th>ECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Pass</td>
<td>$ 256,631</td>
<td>0.15%</td>
<td>2.75</td>
<td>0.41%</td>
<td>15.0%</td>
<td>0.47%</td>
<td></td>
<td>$ 1,217</td>
</tr>
<tr>
<td>2 Pass</td>
<td>$ 684,349</td>
<td>0.30%</td>
<td>2.50</td>
<td>0.75%</td>
<td>15.0%</td>
<td>0.86%</td>
<td></td>
<td>$ 5,907</td>
</tr>
<tr>
<td>3 Pass</td>
<td>$ 1,539,785</td>
<td>0.60%</td>
<td>2.75</td>
<td>1.65%</td>
<td>15.0%</td>
<td>1.90%</td>
<td></td>
<td>$ 29,283</td>
</tr>
<tr>
<td>4 Pass</td>
<td>$ 4,875,986</td>
<td>1.21%</td>
<td>2.00</td>
<td>2.41%</td>
<td>15.0%</td>
<td>2.77%</td>
<td></td>
<td>$ 135,286</td>
</tr>
<tr>
<td>5 Watch</td>
<td>$ 855,436</td>
<td>2.43%</td>
<td>1.50</td>
<td>3.64%</td>
<td>15.0%</td>
<td>4.19%</td>
<td></td>
<td>$ 35,816</td>
</tr>
<tr>
<td>6 OAEM</td>
<td>$ 256,631</td>
<td>4.91%</td>
<td>2.25</td>
<td>11.05%</td>
<td>15.0%</td>
<td>12.71%</td>
<td></td>
<td>$ 32,626</td>
</tr>
<tr>
<td>7 Substandard</td>
<td>$ 85,544</td>
<td>10.07%</td>
<td>1.75</td>
<td>17.62%</td>
<td>15.0%</td>
<td>20.26%</td>
<td></td>
<td>$ 17,333</td>
</tr>
<tr>
<td>8 Doubtful</td>
<td>$ -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$ -</td>
</tr>
<tr>
<td>9 Loss</td>
<td>$ -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>$ -</td>
</tr>
<tr>
<td></td>
<td>$ 8,554,362</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.01% $ 257,468</td>
</tr>
</tbody>
</table>

Based on weighted average charge-off rate over 3-year look-back

Adjustment for current portfolio characteristics and reasonable forecasts

ECL = Balance x Lifetime LR

Key Considerations:

- Must justify segmentation granularity, look-back period and qualitative adjustments
- Qualitative adjustments might be different for sub-segments (i.e. remaining maturity)
- Can use loan-level maturity
- Assumes loss rates implicitly controls for time value of money, prepayments, and amortization dynamics
Approach 2: Develop loss rate model conditioned on macroeconomic scenario(s)

» Link lifetime loss rate with loan’s risk rating, age, maturity, size, and other characteristics (to the extent permitted by available data), as well as macroeconomic scenarios

» Alternatively, develop loss rate term structure and link quarterly losses to borrower/loan characteristics, as well as macro-scenario variables

» May still consider Q-factors for additional adjustments for current and future environments that are not captured by the quantitative models

» Requires access to loan-level loss history
Moody’s has researched historical loss rates using loan level data in Moody’s Credit Research Database (CRD)

» Quarterly portfolio snapshots of C&I loan information from 2000 Q2 to 2015 Q4

» Borrower information: rating, industry, size, geographical info, etc.

» Loan information: product type, origination & maturity date, balance, interest rate, charge off history, etc.

» Sample summary statistics:
  - 0.6 million unique loans
  - 2.6+ million snapshots
  - Average loan balance is $934,460
  - Weighted average maturity is 1.8 years
  - Weighted average age is 0.89 years

Source: Moody’s Analytics US Credit Research Database
**Lifetime Loss Rate by Time to Maturity and Loan Age**

*Can be used to estimate lifetime loss rate parameter*

*Can be used to develop loss rate term structure*

 書面を自然に読み取るための純テキスト表現

> Data displayed meaningful variation by loan size, risk rating, industry, and origination vintage

源: Moody's Analytics US Credit Research Database
Several methodologies have been developed to link macroeconomic variables to loss rates for stress testing.

For CECL, scenarios can be used to condition the lifetime loss rate or the term structure of quarterly/annual loss rates.
Approach 2: Scenario conditioned loss rate curves segmented by rating and loan age

Group of 4-rated loans (same scale as prior example) of the same vintage and with the same remaining maturity (2.25 years). The effective annual interest rate is 4%.

Based on weighted average charge-off rate over 3-year look-back

Scenario-conditioned loss rates over 8 quarters; mean reversion thereafter

ECL = $ \sum L_R t \times EAD_t \times D_{Ft}$

<table>
<thead>
<tr>
<th>Horizon (Qtrs)</th>
<th>Loan Age (Yrs)</th>
<th>Remaining Maturity (Years)</th>
<th>EAD (000s)</th>
<th>Historical Loss Rate (Qtr)</th>
<th>Scenario Type</th>
<th>Scenario Conditioned Loss Rate (Qtr)</th>
<th>ECL</th>
<th>Discount Factor</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>t+1</td>
<td>0.75</td>
<td>2.25</td>
<td>$1,000</td>
<td>0.10%</td>
<td>Baseline</td>
<td>0.07%</td>
<td>$0.70</td>
<td>0.990</td>
<td>$0.69</td>
</tr>
<tr>
<td>t+2</td>
<td>1.00</td>
<td>2.00</td>
<td>$900</td>
<td>0.16%</td>
<td>Baseline</td>
<td>0.08%</td>
<td>$0.72</td>
<td>0.980</td>
<td>$0.71</td>
</tr>
<tr>
<td>t+3</td>
<td>1.25</td>
<td>1.75</td>
<td>$800</td>
<td>0.16%</td>
<td>Baseline</td>
<td>0.16%</td>
<td>$1.28</td>
<td>0.971</td>
<td>$1.24</td>
</tr>
<tr>
<td>t+4</td>
<td>1.50</td>
<td>1.50</td>
<td>$700</td>
<td>0.16%</td>
<td>Baseline</td>
<td>0.24%</td>
<td>$1.68</td>
<td>0.961</td>
<td>$1.61</td>
</tr>
<tr>
<td>t+5</td>
<td>1.75</td>
<td>1.25</td>
<td>$600</td>
<td>0.18%</td>
<td>Baseline</td>
<td>0.28%</td>
<td>$1.68</td>
<td>0.951</td>
<td>$1.60</td>
</tr>
<tr>
<td>t+6</td>
<td>2.00</td>
<td>1.00</td>
<td>$500</td>
<td>0.21%</td>
<td>Baseline</td>
<td>0.35%</td>
<td>$1.75</td>
<td>0.942</td>
<td>$1.65</td>
</tr>
<tr>
<td>t+7</td>
<td>2.25</td>
<td>0.75</td>
<td>$400</td>
<td>0.21%</td>
<td>Baseline</td>
<td>0.42%</td>
<td>$1.68</td>
<td>0.933</td>
<td>$1.57</td>
</tr>
<tr>
<td>t+8</td>
<td>2.50</td>
<td>0.50</td>
<td>$300</td>
<td>0.22%</td>
<td>Baseline</td>
<td>0.30%</td>
<td>$0.90</td>
<td>0.923</td>
<td>$0.83</td>
</tr>
<tr>
<td>t+9</td>
<td>2.75</td>
<td>0.25</td>
<td>$200</td>
<td>0.25%</td>
<td>Long-run Avg.</td>
<td>0.25%</td>
<td>$0.50</td>
<td>0.914</td>
<td>$0.46</td>
</tr>
<tr>
<td>t+10</td>
<td>3.00</td>
<td>-</td>
<td>$100</td>
<td>0.25%</td>
<td>Long-run Avg.</td>
<td>0.25%</td>
<td>$0.25</td>
<td>0.905</td>
<td>$0.23</td>
</tr>
</tbody>
</table>

**Key Considerations:**

- Must justify segmentation granularity, look-back period and qualitative adjustments
- Must identify appropriate number and type of scenarios (i.e. baseline, consensus), as well as supportable forecast period
- Requires discounting cash flows using appropriate discount rate
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PD/LGD Parameter Types

**Current Approach**

- **TTC Loss Estimation (PD / LGD / EAD)**
  - Incorporates historical experience
  - Incorporates current conditions

- **PIT Loss Estimation (PD / LGD / EAD)**
  - Incorporates historical experience
  - Incorporates current conditions

- **Stress Testing Loss Estimation (PD / LGD / EAD)**
  - Incorporates historical experience
  - Incorporates current conditions

**Gap to CECL**

- Incorporate forecasts
- Forecast life of loan ECL
  - Segment-appropriate

**Enhance Strategy**

**Replace Strategy**

**COMPLEXITY AND VOLATILITY**

OR
Fulfill CECL Requirements for C&I Loans

Information Set

1. **Historical experience**: Credit loss estimation based on historically observed relationship between realized defaults/losses and firm characteristics such as financial ratios.

2. **Current conditions**: Current conditions of the firm, the loan, and the market.

3. **Reasonable and supportable forecasts**: A reasonable forward-looking view into the forecastable future.

Methodology Foundation

4. **Method**: Examine existing loss estimation method, e.g. an existing PD/LGD model can likely serve as a good starting point. Also examine whether it should be modified to incorporate additional requirements.

5. **Lifetime loss estimates**: Over contractual terms. Also based on reasonable and supportable forecasts.
Bank A originates a 5-year credit facility to a private energy firm located in Texas. The credit facility has a borrowing base of $10 million, re-determined every year. The interest rate is fixed at 6%. Bank A has PD, LGD models that are CECL compliant. Under a PD/LGD framework that uses risk parameter term structures, one would estimate ECL as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Balance*</th>
<th>Borrowing Base</th>
<th>TTC PD</th>
<th>PIT PD</th>
<th>LGD</th>
<th>EL rate</th>
<th>ECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$10,000</td>
<td>$10,000</td>
<td>1.2%</td>
<td>1.7%</td>
<td>39.4%</td>
<td>0.7%</td>
<td>$64</td>
</tr>
<tr>
<td>1</td>
<td>$9,834</td>
<td>$8,000</td>
<td>1.2%</td>
<td>1.7%</td>
<td>39.4%</td>
<td>0.7%</td>
<td>$71</td>
</tr>
<tr>
<td>2</td>
<td>$7,775</td>
<td>$8,000</td>
<td>1.7%</td>
<td>2.3%</td>
<td>40.1%</td>
<td>0.9%</td>
<td>$78</td>
</tr>
<tr>
<td>3</td>
<td>$7,571</td>
<td>$8,000</td>
<td>2.1%</td>
<td>2.6%</td>
<td>39.3%</td>
<td>1.0%</td>
<td>$81</td>
</tr>
<tr>
<td>4</td>
<td>$7,355</td>
<td>$8,000</td>
<td>2.3%</td>
<td>2.9%</td>
<td>38.9%</td>
<td>1.1%</td>
<td>$81</td>
</tr>
<tr>
<td>5</td>
<td>$7,132</td>
<td>$8,000</td>
<td>2.5%</td>
<td>3.0%</td>
<td>38.5%</td>
<td>1.2%</td>
<td>$84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PV $316.63</td>
</tr>
</tbody>
</table>

**PD model component**
- Firm’s financial performance
- Energy sector historical default rate
- Market expectations for energy firms
- Produces 1-5 year PD term structure

**LGD model component**
- Debt type, seniority, collateral
- Geography, industry average LGD
- Market expectation for energy firms
- Produces 1-5 year LGD term structure

**EAD component**
- Historical usage of the facility
- Borrowing base
- Covenants

*Assume full utilization of the facility. Borrowing base reduced to account for the market condition.
Approach 1: CECL Compliant PD / LGD Model (Cont.)

Quantitatively adjusting PDs for current **and** forward-looking information

Financial statement Information

Unemployment Rate Trend in Texas

Credit Trend of Publicly Traded Energy Firms

Unconditional Point-in-Time PD that provides the expected value out of a range of possible outcomes

Source: Moody’s RiskCalc, CreditEdge
PD and LGD Term structure

» There are different approaches to construct PD term structure

– PD model used in this example builds a 1-year model and a 5-year model separately, and extrapolate the term structure

» 1-year model puts more weight on credit cycle factor than 5-year model

» LGD model used in this example has a short-term LGD model and a long-term LGD model

– Short-term model puts more weight on credit cycle factor than long-term model
Approach 2: Agency rating based assessment

What if the bank only has an agency rating of Baa3 on this firm, no PD model available?

- Agency Ratings typically are more though the cycle (TTC) focusing on relative ranking of credit risk.
- Using a dataset with PIT PD and rating information, we can estimate a rating to 1-year PD mapping, considering country-specific and industry specific credit trend

Source: Moody’s CreditEdge
Approach 2: Agency rating based assessment (Cont.)

» Agency ratings typically do not have a term structure. How can we construct a term structure based on the 1-year PIT PD?

- Longer-term EDF measures are more stable at the firm and portfolio level
- Upward sloping in good times, and vice versa
- Upward sloping for good names, and vice versa
- For the same 1-year EDF, firms in riskier industries will have steeper term structures
- For the same 1-year EDF, smaller firms will have steeper term structures

Source: Moody’s RiskCalc, CreditEdge
Construct a lookup table to map a rating to PIT PD term structure

Can be leveraged to extend PD term structure for internal ratings (must relate internal ratings to agency ratings)

Baa3 rated firm has 5-year PIT PD of 1.18%

<table>
<thead>
<tr>
<th>Rating</th>
<th>Maturity</th>
<th>1.00</th>
<th>2.00</th>
<th>3.00</th>
<th>4.00</th>
<th>5.00</th>
<th>6.00</th>
<th>7.00</th>
<th>8.00</th>
<th>9.00</th>
<th>10.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaa</td>
<td>0.038%</td>
<td>0.054%</td>
<td>0.070%</td>
<td>0.095%</td>
<td>0.117%</td>
<td>0.139%</td>
<td>0.160%</td>
<td>0.182%</td>
<td>0.191%</td>
<td>0.199%</td>
<td></td>
</tr>
<tr>
<td>Aa1</td>
<td>0.061%</td>
<td>0.086%</td>
<td>0.112%</td>
<td>0.151%</td>
<td>0.186%</td>
<td>0.221%</td>
<td>0.254%</td>
<td>0.289%</td>
<td>0.303%</td>
<td>0.315%</td>
<td></td>
</tr>
<tr>
<td>Aa2</td>
<td>0.077%</td>
<td>0.109%</td>
<td>0.141%</td>
<td>0.190%</td>
<td>0.235%</td>
<td>0.279%</td>
<td>0.321%</td>
<td>0.364%</td>
<td>0.382%</td>
<td>0.397%</td>
<td></td>
</tr>
<tr>
<td>Aa3</td>
<td>0.097%</td>
<td>0.137%</td>
<td>0.177%</td>
<td>0.239%</td>
<td>0.296%</td>
<td>0.351%</td>
<td>0.404%</td>
<td>0.459%</td>
<td>0.481%</td>
<td>0.500%</td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>0.122%</td>
<td>0.173%</td>
<td>0.223%</td>
<td>0.302%</td>
<td>0.373%</td>
<td>0.443%</td>
<td>0.509%</td>
<td>0.578%</td>
<td>0.606%</td>
<td>0.630%</td>
<td></td>
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The mapping table may vary by industry and region, and should be updated periodically.

Source: Rating converter from Moody’s ImpairmentCalc
Table of Contents

1. Overview of Common ECL Methodologies for C&I
2. Adapting Loss Rate Methodology
3. Adapting PD/LGD Methodology
4. Conclusions and Q&A
Conclusion

» Historical loss rate, migration rate, and PD/LGD methodologies are the most popular ECL estimation approaches for C&I portfolios, and can be leveraged for CECL

» Risk ratings, industry, and borrower size are among the most common segmentation dimensions

» A key consideration is whether to model ECL using risk parameter term structures
  – **Term Structure**: accounts for the timing and magnitude of losses and the time value of money
  – **Current/Lifetime**: Based on current balance and cumulative loss rate estimate

» When using term structures, need to consider prepayment and usage behavior (for off-balance sheet exposures)

» Current and forward-looking information can be incorporated quantitatively, or through Q-factors
Welcome!

Moody’s Analytics CECL Webinar Series: Expected Credit Loss Quantification

Introduction to CECL Quantification
Tuesday, February 14, 2017 | 1:00PM EST

CRE CECL Methodologies
Tuesday, February 28, 2017 | 1:00PM EST

C&I CECL Methodologies
Tuesday, March 14, 2017 | 1:00PM EDT

Retail CECL Methodologies
Tuesday, March 28, 2017 | 1:00PM EDT

Structured Assets CECL Methodologies
Thursday, April 20, 2017 | 1:00PM EDT

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Solutions to Support CECL Impairment Calculation
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