Emerging Financial Reporting & Accounting Issues

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Today’s Goals

- Discuss key upcoming accounting standard changes for financial institutions
- Understand how these standards may impact financial institutions
- Discuss what financial institutions should be doing to address these standards
- Provide key takeaways & resources for financial institutions
Opening Thoughts

• FASB has been very busy over the last several years
  – Big 3 accounting standards & others
  – Convergence

• Implementation of some of the upcoming standards will be significantly impactful on your resources & your financial statements

• We are not covering every possible standard that will affect financial institutions
Implementing New Standards

“\textit{I’m not procrastinating. I’m proactively delaying the implementation of the energy-intensive phase of the project until the enthusiasm factor is at its maximum effectiveness.}”

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Implementing New Standards

• FASB has created a resource for implementation guidance for major standards
  
  –  https: | www.fasb.org/jsp/FASB/Page/BridgePage&cid=1176169238144
<table>
<thead>
<tr>
<th>Year</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016-02 Leases</td>
<td>2016-13 Credit Losses (CECL)* - SEC (Non SRCs)</td>
<td>2017-04 Simplifying the Test for Goodwill Impairment* - non-SEC</td>
</tr>
<tr>
<td></td>
<td>2017-08 Premium Amortization on Purchased Callable Debt Securities*</td>
<td>2017-04 Simplifying the Test for Goodwill Impairment* - SEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2017-12 Derivatives &amp; Hedging</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Effective Dates for Financial Institutions – Non-PBEs (* Early Adoption Permitted)

2019
- 2014-09 Revenue Recognition
- 2016-01 Financial Instruments*
- 2017-01 Business Combinations

2020
- 2017-08 Premium Amortization on Purchased Callable Debt Securities*

2021
- 2016-02 Leases
- 2017-12 Derivatives & Hedging

2022
- 2017-04 Simplifying the Test for Goodwill Impairment*

2023
- 2016-13 Credit Losses (CECL)* (PBEs, SRCs, Private Companies)
Potential Severity of Impact on Financial Institutions

High Impact
- 2016-13 CECL

Moderate Impact
- 2016-02 Leases
- 2017-12 Derivatives & Hedging

Low Impact
- 2014-09 Revenue Recognition
- 2017-01 Business Combinations
- 2017-08 Premium Amortization
- 2016-01 Financial Instruments
- 2017-04 Simplifying the Test for Goodwill Impairment
ASU 2014-09, Revenue From Contracts With Customers

Step 1: Identify contract with customer

Step 2: Identify performance obligations

Step 3: Determine transaction price

Step 4: Allocate transaction price

Step 5: Recognize revenue
ASU 2014-09, Revenue From Contracts With Customers

Financial Institutions revenue deemed **out of scope** of ASU 2014-09

- Interest income on loans & investments
- Loan origination fees
- Loan commitment fees
- Mortgage servicing income
- Prepayment fees
- Late fees
- Securities & loan sale transactions
Financial Institutions revenue in scope of ASU 2014-09

- Deposit-related fees
- Interchange income
- Asset management fees
- Sales of other real estate owned OREO) (ASC 610-20)
Revenue recognition-what have we learned?

• From review of publicly traded community banks, impact generally has not been material
• Very limited impact on timing of recognition or gross versus net presentation of revenue
• Increased documentation to support conclusions
• Potential for impact on debt covenants with loan customers
Revenue Recognition Resources

• Revenue Recognition: How It Affects Your Financial Institution
  – BKD Article

• BKD Revenue Recognition Homepage
  – BKD Revenue Recognition Homepage

• FASB Revenue Recognition Homepage
  – FASB Revenue Recognition

• AICPA Revenue Recognition Homepage
  – AICPA Revenue Recognition Homepage
Multifaceted ASU targeting improvements to several financial instruments

For financial institutions, there are two major changes that may be impactful:

- Fair value disclosures of financial instruments
- Changes to accounting for equity investments
• Nonpublic business entities are allowed to remove the fair value table disclosure for assets & liabilities recorded at amortized cost
  – Could (& should have) early adopted back in 2016 & forward
### Fair Value of Financial Instruments

The following table presents estimated fair values of the Company’s financial instruments at December 31, 20X2 and 20X1.

<table>
<thead>
<tr>
<th>Financial assets</th>
<th>Carrying Amount</th>
<th>Fair Value</th>
<th>Carrying Amount</th>
<th>Fair Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalents</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Accrued interest receivable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loans held for sale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonmarketable equity securities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortgage servicing rights</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2019 BKD Financial Services Symposiums
• Requires all equity investments to be measured at fair value with changes recognized in net income
  – Eliminates cost method of accounting for equity investments without readily determinable fair value

• Specifically excludes FHLB & FRB stock

• Provides for an alternative for investments without readily determinable FV
  – Allowing for cost minus impairment, if any, plus or minus changes resulting from observable price changes for the identical or a similar investment of the same issuer
Most common areas of impact

- No longer able to use available-for-sale equity security classification
- How to determine when you have observable price changes
ASU 2017-01, Business Combinations (Topic 805)
Three elements to a business (also known as a set):
- Inputs
- Processes
- Outputs

Provide a screen to help determine when a set is not a business
- Substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single identifiable asset or group of similar assets – set is not a business

If screen is not met – updated requirements related to inputs, processes & outputs
Key takeaways for financial institutions

• Less transactions will qualify as business combinations
• Some will be combinations, others won’t
ASU 2016-02, Leases
ASU 2016-02, Leases

• Primary Objectives of the Standard:
  – Address the off-balance-sheet financing concerns related to lessees’ operating leases by requiring almost all leases to be recorded on the balance sheet
  – Lessor accounting is largely unchanged
  – Change in definition for leases & focused on transfer of control & definition of control is in line with revenue recognition in Topic 606
ASU 2016-02, Leases

Key takeaways for financial institutions

- Most lessee operating leases will now be recorded on the balance sheet
- Potentially more leases (embedded leases)
- Most impactful to financial institutions with a large leased branch network (impact on capital ratios?)
- Understand transition, practical expedient & accounting policy elections
• Lessees will be required to recognize the following for all leases
  
  – A lease liability, which is a lessee’s obligation to make lease payments arising from a lease, measured on a discounted basis
  
  – A right-of-use (ROU) asset, which is an asset that represents the lessee’s right to use, or control the use of, a specific asset for the lease term
ASU 2016-02, Leases – Lessee Accounting

Leases will either be financing or operating

- Either way, they will be on balance sheet
- Generally, today’s capital leases will be financing leases, & today’s operating leases will be operating leases...but there are exceptions

Classification will be determined in accordance with the principles in current lease requirements, but without the bright-line tests

- Contains one additional criteria regarding specialized nature of the underlying asset

The ROU asset & lease liability will be recorded at the PV of lease payments using the discount rate, over the expected lease term

- Discount rate would be the rate implicit in the lease, or if none, the company’s incremental borrowing rate
- Lease term includes option periods if it is reasonably certain that they will be exercised
If Operating Lease

• ROU asset & lease liability will be the same at commencement
• Recognize lease expense in income statement
• Adjust lease liability to PV of remaining lease payments, with an offset to ROU asset

If Financing Lease

• Record interest expense using discount rate, with offset to lease liability
• Record amortization expense on the ROU asset
Transition Considerations

• Modified Retrospective

• Practical expedients
  – Use of the practical expedient package & hindsight package may ease operational burden of implementation

• Accounting policy elections
  – Numerous items to be considered, including materiality determination & discount rate
Leases – Resources

• BKD Leases Homepage:
  – BKD Thoughtware: Lease Accounting

• FASB Leases Homepage:
  – FASB Leases
ASU 2017-12, Derivatives & Hedging: Targeted Improvements to Accounting for Hedging Activities
In creating the standard, FASB sought to address concerns of both preparers who found hedge accounting rules burdensome & users who had difficulty understanding some of the presentations of hedge accounting information that exist under present GAAP, including:

- Hedging prepayable instruments, *e.g.*, callable debt
- Partial-term fair value hedges
- Last of layer designation
- Determination of effectiveness of hedging
Key takeaways for financial institutions

• May open the door for additional interest rate risk management strategies

• Purpose of standard is to simplify accounting & better align with institution’s risk management practices

• Allows a one-time option to move some securities from HTM to AFS
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2016-13 Credit Losses (CECL)
Key considerations for financial institutions

- Most substantial accounting change in recent history
- Standard includes 2 different impairment models – CECL & AFS debt securities
- Of all upcoming standards, investment of time & resources is highest for CECL
- Use the time you have to educate & implement
New Impairment Guidance (CECL)

Incurred/Probable

Expected/Lifetime

Note: Incurred is typically considered a subset of expected
### CECL Scope

#### INCLUDED
- Financing receivables
- Held-to-maturity debt securities [no more other-than-temporary impairment (OTTI)]
- Loan commitments, guarantees, standby L/C
- Lease receivables as lessor (ASC 842)
- Reinsurance receivables
- Receivables on repurchase & securities lending agreements

#### EXCLUDED
- Financial assets at fair value
- Available for sale debt (updated model)
- Participant loans defined contribution benefit plans
- Insurance policy loans
- NFP pledges receivable
Regulatory Expectations

Regulators will begin, if they have not already, asking about CECL

Don’t be caught flat footed

Current focus will be in planning & readiness
CECL – Three Key Components

GAP ANALYSIS

MODEL SELECTION

POOL SEGMENTATION

DATA INVENTORY

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Cumulative (Cohort/Static Pool/Open Pool) Loss Rate Models

- Freezes all the loans in a segment pool at a particular point in time, then tracks the loss history on those loans over the remaining lives
  - Example 1 in the CECL portion of Topic 326
• Management has a pool of nonowner-occupied commercial real estate loans that share similar risk characteristics.

• Management estimates remaining life for the pool, based upon weighted average remaining life, & determined prepayments historically has minimal impact.

• Management believes the historical loss experience of the pool of loans as of December 31, 2013, is a good proxy to the December 31, 2017 pool.

• Management determined asset-specific differences (underwriting standards, portfolio mix, loan terms, etc.) in the historic pool (December 31, 2013) & the current pool (December 31, 2017).
Cumulative Loss Rate Example Fact Pattern

- Management will qualitatively adjust for any necessary adjustments to historical experience for current conditions & future forecasts
- Management has determined that recoveries have been historically immaterial
- Management determined that historically any remaining premiums, discounts, deferred fees & costs have been considered when charging off loans
- No individually evaluated loans as of December 31, 2017
<table>
<thead>
<tr>
<th>Year</th>
<th>Amortized Cost</th>
<th>Losses on Loans as of December 31, 2013</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>$1,010,000</td>
<td>$0</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>3,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>7,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>5,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>$1,650,000</td>
<td>3,900</td>
<td></td>
</tr>
</tbody>
</table>

- **$20,700** Cumulative lifetime losses on loans as of December 31, 2013
- **$1,010,000** Amortized cost balance as of December 31, 2013
- **2.05%** Cumulative 4-year historical lifetime loss rate
- **0.05%** - Real estate value decreased
- **0.03%** - Unemployment rate increased
- **0.08%** Total Current Q-Factor Rate Adjustment
- **0.04%** - Expect additional real estate value decreases
- **0.02%** - Expect additional unemployment rate increases
- **0.06%** Total Forecast Q-Factor Rate Adjustment
- **2.19%** Total CECL Lifetime Loss Rate

- **$1,650,000** Amortized cost balance as of December 31, 2017
- **$36,126.83** Allowance for expected credit losses at December 31, 2017

Look-back period for historical lifetime loss experience
Estimated life, which includes expectation of prepayments
Forecast period
Immediate reversion
Based on amortized cost
Migration Example

• Previous example does not consider changes in underlying risk in the portfolio

• This migration loss rate approach further considers risk by subsegmenting the pool by risk grade

• To illustrate the vastly different results that could occur, we kept all facts the same except we assumed the following
  – At December 31, 2013, Special Mention was 10% & substandard was 5% of the portfolio
  – At December 31, 2017, Special Mention was 15% & Substandard was 10% of the portfolio
  – Subsequent losses on the December 31, 2013 balances, as graded on that date, were assumed to be 10% for Pass, 30% for Special Mention & 60% for Substandard
### Migration Model Example

<table>
<thead>
<tr>
<th>Rating</th>
<th>12/31/2013</th>
<th>12/31/2017</th>
<th>CECL Loss Rate</th>
<th>CECL Allowance 12/31/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>$ 858,500</td>
<td>$ 1,237,500</td>
<td>0.38%</td>
<td>$ 4,716.34</td>
</tr>
<tr>
<td>Special Mention</td>
<td>101,000</td>
<td>247,500</td>
<td>6.29%</td>
<td>15,564.07</td>
</tr>
<tr>
<td>Substandard</td>
<td>50,500</td>
<td>165,000</td>
<td>24.73%</td>
<td>40,811.20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$ 1,010,000</td>
<td>$ 1,650,000</td>
<td></td>
<td>$ 61,091.61</td>
</tr>
</tbody>
</table>

**From previous example** $36,126.83

**Additional reserve added by considering changes in concentrations in risk ratings** $24,964.78

---

**Pass**

<table>
<thead>
<tr>
<th></th>
<th>12/31/2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Charge Offs</td>
<td>-</td>
<td>370</td>
<td>760</td>
<td>550</td>
<td>390</td>
<td>$ 2,070</td>
</tr>
<tr>
<td>Starting Loan Balance</td>
<td>858,500</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Loss Percentage (D/A)** 0.24%

Current & Forecast Q-Factor Adjustment 0.14% *From previous example*

Total Pass CECL Lifetime Loss Rate 0.38%

---

**Special Mention**

<table>
<thead>
<tr>
<th></th>
<th>12/31/2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Charge Offs</td>
<td>1,110</td>
<td>2,280</td>
<td>1,650</td>
<td>1,170</td>
<td></td>
<td>$ 6,210</td>
</tr>
<tr>
<td>Starting Loan Balance</td>
<td>101,000</td>
<td>B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Loss Percentage (E/B)** 6.15%

Current & Forecast Q-Factor Adjustment 0.14% *From previous example*

Total SM CECL Lifetime Loss Rate 6.29%

---

**Substandard**

<table>
<thead>
<tr>
<th></th>
<th>12/31/2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Charge Offs</td>
<td>2,220</td>
<td>4,560</td>
<td>3,300</td>
<td>2,340</td>
<td></td>
<td>$ 12,420</td>
</tr>
<tr>
<td>Starting Loan Balance</td>
<td>50,500</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Loss Percentage (F/C)** 24.59%

Current & Forecast Q-Factor Adjustment 0.14% *From previous example*

Total Substandard CECL Lifetime Loss Rate 24.73%
Cumulative Loss/Migration Model

### Pros
- Less complex model
- Data fields & inputs less complex
- Q factor adjustment process will be similar to current practice
- Overall process is simple

### Cons
- May be reliant on older periods that are not relevant today or data may be hard to obtain
- Q factor & forecast adjustments are harder to support (top-level adjustments)
Vintage Loss Rate Models

• Considers losses over the full life cycle of loan pools

• A vintage is a group of loans originated in the same time period (monthly, quarterly, annually, etc.) However, analysis can be based on any type of shared pooling criterion & assets originated in a similar time period, i.e., loans originated from 2008 to 2013 based on FICO bands.
  – Also called closed pool or age-period cohort
  – Example 3 in the standard
Vintage Key Assumptions

- Pooling based upon similar risk characteristics, including vintage time period
- Estimated life of loan pools, including prepayments
- Look-back period for historical loss experience
- Potential use of peer data
- Forecast sources & period
- Forecast & Q factor adjustments
- Reversion technique
Management has a pool of fully amortizing C&I equipment loans that share similar risk characteristics.

Management estimates remaining life for the pool, based on remaining contractual term of pool adjusted for prepayment assumptions from their ALM software.

Management believes loans originated from 2013 to 2017 experienced similar credit risk conditions as expected over the remaining life of the pool of loans at December 31, 2017.

Management determined no asset-specific differences in the historic pools & the current pool.
Vintage Loss Rate Example Fact Pattern

• Management can forecast reasonable for two years & expects a rise in unemployment

• Management will qualitatively adjust for any necessary adjustments to historical experience for current conditions & future forecasts

• Management has determined recoveries aren’t significantly delayed from charge offs & therefore net losses

• Management determined that historically any remaining premiums, discounts, deferred fees & costs have been considered when charging off loans

• No individually evaluated loans as of December 31, 2017
Vintage Analysis Example

### Amortizing C&I Loans by Vintage - Example 3 in Standard

**C&I - Estimated CECL Life of 4 years**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>$22,050,000</td>
<td>$0</td>
<td>$100,000</td>
<td>$200,000</td>
<td>$150,000</td>
<td>$15,000</td>
<td>$4,630,600 A</td>
</tr>
<tr>
<td>2014</td>
<td>$23,153,000</td>
<td>$0</td>
<td>$0</td>
<td>$102,000</td>
<td>$204,000</td>
<td>$153,000</td>
<td>$9,724,400 B</td>
</tr>
<tr>
<td>2015</td>
<td>$24,311,000</td>
<td>$0</td>
<td>$0</td>
<td>$104,040</td>
<td>$0</td>
<td>$103,000</td>
<td>$15,316,200 C</td>
</tr>
<tr>
<td>2016</td>
<td>$25,527,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$21,442,400 D</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>$26,803,000</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
<td>$51,113,600</td>
</tr>
</tbody>
</table>

**Loss Rates**

<table>
<thead>
<tr>
<th>Origination Year</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Total</th>
<th>Remaining CECL Loss Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>0.00%</td>
<td>0.45%</td>
<td>0.91%</td>
<td>0.68%</td>
<td>0.07%</td>
<td>2.11%</td>
<td>0.00% E</td>
</tr>
<tr>
<td>2014</td>
<td>0.00%</td>
<td>0.44%</td>
<td>0.88%</td>
<td>0.66%</td>
<td>0.17%</td>
<td>2.15%</td>
<td>0.17% F</td>
</tr>
<tr>
<td>2015</td>
<td>0.00%</td>
<td>0.43%</td>
<td>0.86%</td>
<td>0.77%</td>
<td>0.22%</td>
<td>2.27%</td>
<td>0.99% G</td>
</tr>
<tr>
<td>2016</td>
<td>0.00%</td>
<td>0.40%</td>
<td>0.98%</td>
<td>0.82%</td>
<td>0.14%</td>
<td>2.35%</td>
<td>1.94% H</td>
</tr>
<tr>
<td>2017</td>
<td>0.00%</td>
<td>0.53%</td>
<td>1.03%</td>
<td>0.75%</td>
<td>0.07%</td>
<td>2.38%</td>
<td>2.38% H</td>
</tr>
</tbody>
</table>

**2018 Forecast**
Due to forecasted rising unemployment average historical experience plus 10 bps

**2019 Forecast**
Due to forecasted rising unemployment 2018 forecast plus 5 bps

**2020 Reversion**
Average historic losses of years 4 and 5 and straight line reduction of forecast period adjustment

**2021 Reversion**
Average historic losses of year 5 and straight line reduction of forecast period adjustment

**I × J**

<table>
<thead>
<tr>
<th>Vintage</th>
<th>Expected Loss Rate</th>
<th>Remaining Balance</th>
<th>CECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>0.17%</td>
<td>4,630,600 A</td>
<td>7,781</td>
</tr>
<tr>
<td>2015</td>
<td>0.99%</td>
<td>9,724,400 B</td>
<td>96,133</td>
</tr>
<tr>
<td>2016</td>
<td>1.94%</td>
<td>15,316,200 C</td>
<td>297,888</td>
</tr>
<tr>
<td>2017</td>
<td>2.38%</td>
<td>21,442,400 D</td>
<td>509,535</td>
</tr>
</tbody>
</table>

Total Current Expected Credit Loss $911,336
### Vintage Loss Rate Model

#### Pros

- Can be used to better isolate pools by changes in economic conditions, collateral value & underwriting
- Improved ability to forecast as more historical data is collected
- Eliminates changes in portfolio growth

#### Cons

- May require tracking of more loss pools
- If loan pools are not homogenous may become difficult
- May be reliant on older periods that are not relevant today
- Doesn’t work well for non-amortizing pools & possibly balloon loans
On January 10, 2019 FASB issued Staff Q&A on WARM.
• The remaining life method uses average annual charge-off rates & remaining life to estimate the allowance for credit losses (ACL)

• For amortizing assets, the remaining contractual life is adjusted by the expected scheduled payments & prepayments, i.e., paydowns

• The average annual charge-off rate is applied to the amortization adjusted remaining life to determine the unadjusted lifetime historical charge-off rate

\[
\text{Lifetime historical charge-off rate} = \text{Avg annual charge-off rate} \times \text{Amortization adjusted remaining life}
\]
FASB Q&A Example Fact Pattern

- Estimate the allowance for credit losses as of 12/31/2020
- Pool of financial assets of similar risk characteristics
  - Amortized cost basis of ~$13.98 million
  - 5-year financial assets (contractual term adjusted by prepayments)
- Management expects the following in 2021 and 2022:
  - Rise in unemployment rates
- Management cannot reasonably forecast beyond 2022
- Assume 0.25% qualitative adjustment to represent both current conditions and reasonable and supportable forecasts

Based on amortized cost
Estimated life which includes expectation of prepayments
Forecast period
**Table 1: Calculate Average Annual Charge-off Rate**

<table>
<thead>
<tr>
<th>Year</th>
<th>Amortized Cost</th>
<th>Average Balance</th>
<th>Actual Annual Net Charge-offs</th>
<th>Annual Charge-off Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>$5,126</td>
<td>7,048</td>
<td>21</td>
<td>0.30%</td>
</tr>
<tr>
<td>2016</td>
<td>8,969</td>
<td>10,094</td>
<td>51</td>
<td>0.51%</td>
</tr>
<tr>
<td>2017</td>
<td>11,220</td>
<td>11,766</td>
<td>42</td>
<td>0.36%</td>
</tr>
<tr>
<td>2018</td>
<td>12,312</td>
<td>12,624</td>
<td>32</td>
<td>0.25%</td>
</tr>
<tr>
<td>2019</td>
<td>12,936</td>
<td>13,458</td>
<td>49</td>
<td>0.37%</td>
</tr>
<tr>
<td>2020</td>
<td>13,980</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Balances are in thousands except charge-off rate data.

**Average annual charge-off rate** 0.36%

*Note: Due to five-year life, need at least five years’ worth of loss experience*
### Table 2: Estimated Amortized Cost Basis

<table>
<thead>
<tr>
<th>Year End</th>
<th>Est. Paydown</th>
<th>Projected Amort Cost</th>
<th>Avg Annual Charge-off Rate</th>
<th>Allowance for Credit Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020 Actual Amortized Cost</td>
<td>$ 13,980</td>
<td>0.36%</td>
<td>$</td>
<td>50</td>
</tr>
<tr>
<td>2021</td>
<td>$ 3,700</td>
<td>10,280</td>
<td>0.36%</td>
<td>37</td>
</tr>
<tr>
<td>2022</td>
<td>3,900</td>
<td>6,380</td>
<td>0.36%</td>
<td>23</td>
</tr>
<tr>
<td>2023</td>
<td>3,000</td>
<td>3,380</td>
<td>0.36%</td>
<td>12</td>
</tr>
<tr>
<td>2024</td>
<td>2,160</td>
<td>1,220</td>
<td>0.36%</td>
<td>4</td>
</tr>
<tr>
<td>2025</td>
<td>1,220</td>
<td>-</td>
<td>0.36%</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Est. unadjusted charge-off amount for remaining balance</td>
<td>126</td>
<td></td>
</tr>
</tbody>
</table>

*Paydown & amortized cost balances in thousands*

- Unadjusted historical charge-off rate for remaining balance: 0.90%
- Qualitative Adjustment: 0.25%
- Total allowance for credit losses rate as of 2020: 1.15%

Total allowance of credit losses as of 2020 ($13,980 x 1.15%): 161
WARM – Key Assumptions

Pooling segmentation by similar risk characteristics

Average annual charge-off rate & look-back period

Amortization adjusted remaining life
  - Contractual life & principal payments
  - Prepayments

Qualitative adjustments

Forecast adjustments
  - Forecast period
  - Reversion method
  - Historical loss experience after reversion
WARM – Benefits & Limitations

Benefits

• Better leverages current processes, including annualized historical loss rates & Q factor adjustments
• Less complex model
• Can be performed in-house
• Easier to accumulate historical loss rate data if pooling at call code

Limitations

• Maybe difficult to determine expected principal payments
• Use of a constant annualized loss rate does not align with lifetime loss experience
• Q factor & forecast adjustments are harder to support
• Better fit for smaller & less complex institutions or segments
• May result in higher reserves
WARM – Why Does It Matter for SEC Issuers?

• This is really intended for smaller & less complex institutions, which more than likely would not be our January 1, 2020 adopters. However, it may be used for some smaller & less complex pools of loans for larger clients
Probability of Default (PD) & Loss Given Default (LGD)

• PD/LGD: separates credit loss into two separate components:
  1) The probability that a loan defaults &
  2) Loss given default

• PD modeling can be done using different statistical & mathematical techniques & represents any model type attempting to predict the probability of default

• The LGD component is the projected amount of exposure at default that will be lost after considering recoveries

• Can include additional models to project exposure at default (EAD), probability of attrition (paid in full) &/or prepayment (excess payments)

• The PD/LGD model can be used as a standalone or within the context of a DCF
Probability of default × loss given default × exposure at default = expected loss (aka CECL allowance)

- **PD**: what is the probability of an asset defaulting over the contractual life of the asset?
- **CECL allowance**: is the product of all three components
- **LGD**: when the asset defaults, what percentage of the exposure at default is charged off?
- **Exposure at default**: what is the outstanding balance at default?
The complexity of approach & models can vary based on institution & vendor, but some high-level thoughts are as follows

- Can be a cumulative approach that uses today’s amortized cost balance to apply cumulative lifetime PD & LGD in which prepayments are built into the life assumption (see examples)

- Can apply projected future period, *i.e.*, PD & LGD to projected exposure at default, which includes explicit prepayment assumption (see example)

- Can become statistically more complex with multiple models (use of specialists?)
CECL Resources

• BKD CECL Homepage:
  – BKD CECL Resource Center

• FASB CECL Homepage:
  – FASB Credit Losses

• AICPA CECL Homepage:
  – AICPA Credit Losses
Thank you!
for more information
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