



Smart decisions. Lasting value.™

NACUSAC Conference

CECL Implementation and Impact to Capital

Agenda

- **Session 1 – CECL Overview**

- CECL Standard Refresher
- Recent Regulatory Updates

- **Session 2 - Practical Risk Assessment**

- Data Analysis
- Risk Factors
- Visualization

- **Session 3 - Models & Methodologies**

- Different model types
- Complex vs simple model pros/cons

- **Session 4 - Roadmapping**

- Developing Your Roadmap
- GAP Assessment Discussion
- Reference Materials
- Closing Q&A



The CECL Model: Defined

- Recognize an allowance for expected credit losses on financial assets
 - Allowance should be amount deducted from amortized cost of the financial asset to present net amount expected to be collected on the financial asset
- Considers more forward-looking information than is permitted under current U.S. GAAP
 - An entity shall not rely solely on past events to estimate expected credit losses. When an entity uses historical loss information, it shall consider the need to adjust historical information to reflect the extent to which management expects current conditions and reasonable and supportable forecasts to differ from the conditions that existed for the period over which historical information was evaluated
- Departs from the incurred loss model which means the probable threshold is removed
 - Removes the prohibition on recording day one losses
- Provides flexibility to utilize different methodologies



What to consider when implementing a CECL methodology?

Historical Loss Information	Includes both relevant internal and external information or combination of both. Pooling or segmentation is based on identification of common risk characteristics.
+ Current Conditions	Adjustments to adequately fit historic information to current conditions, i.e. current asset specific risk characteristics. This may be through qualitative or quantitative factors.
+ Reasonable and Supportable Forecasts	Adjustments to adequately reflect an entities forecast of economic impact on the asset in the future. These may be qualitative or quantitative in nature. Additionally, these adjustments may be made at the input level or as top of model adjustments.
+ Reversion to History	Entities are to revert to historical loss information when unable to make reasonable and supportable forecasts. This may be done at the input level or in aggregate. Reversion should follow a rational systematic approach.
= Expected Credit Loss	The end result should represent the expected credit loss over the remaining contractual term of the financial asset or group of financial assets.

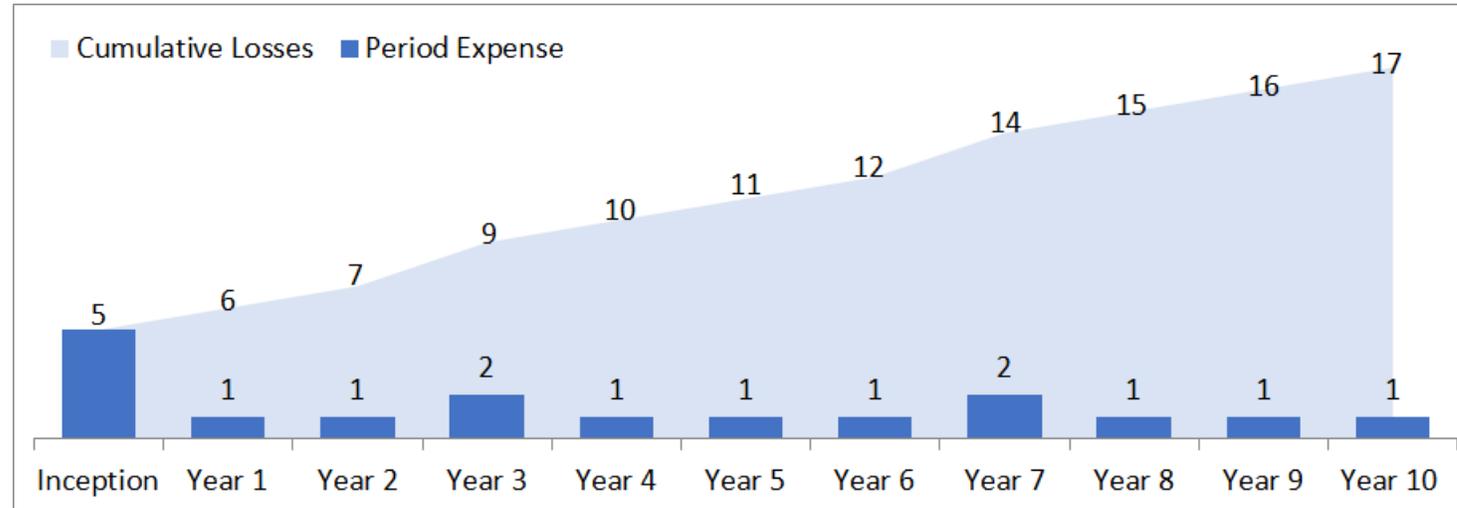
The first two steps are similar to what we do today – just different math to get to lifetime loss and more moving parts.

Forecasting is interesting, but **history** is at the foundation

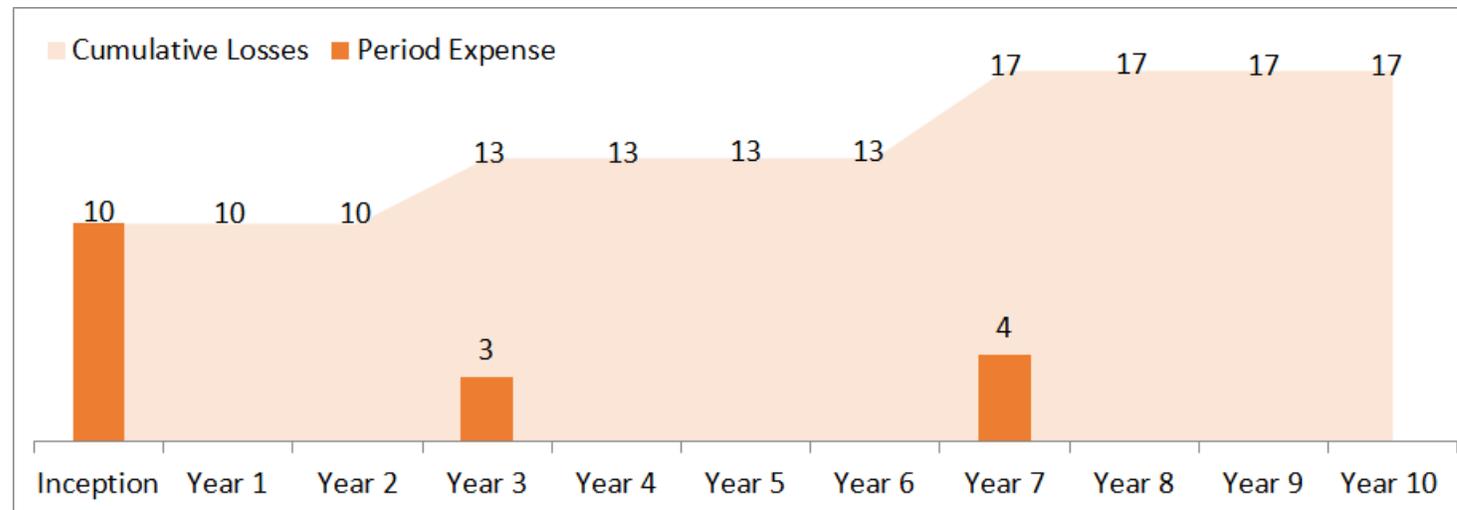
Cumulative Credit Loss Example

10-year asset class with loss estimates determined at inception and revised in Years 3 and 7

Incurred
Loss
Model



Expected
Loss
Model



Scope for the CECL Model

Key point - Its not just for loans!

In CECL

- Financial assets measured at amortized cost basis, including:
 - Financing receivables
 - Held-to-maturity (HTM) debt securities
 - Receivables from revenue transactions (Topics 605, 606 and 610)
 - Reinsurance receivables from insurance transactions (Topic 944)
 - Receivables that relate to repurchase agreements and securities lending agreements (Topic 860)
- Net investments in leases by lessors (Topic 842)
- Off-balance-sheet credit exposures not accounted for as insurance
 - Off balance sheet loan commitments,
 - Standby letters of credit
 - Financial guarantees not accounted for as insurance
 - Other similar instruments, except for derivatives and hedges (Topic 815)

However, ASU does change for AFS too!

Not in CECL

- Financial assets measured at FV through net income
- Available-for-sale debt securities
- Loans made to participants by defined contribution employee benefit plans
- Policy loan receivables of an insurance entity
- Promises to give (pledges receivable) of a not-for-profit entity
- Loans and receivables between entities under common control



PCI (revised to PCD) Assets

More than just loans!

- Amortized cost at initial recognition = the purchase price and the associated expected credit loss at the date of purchase (Gross up approach)
 - Establish a day one allowance – significant shift from current GAAP
 - Can use DCF or loss rate method on unpaid principal balance (face value)
 - Contemplates use of existing systems

Loan—par amount	\$ 1,000,000	
Loan—noncredit discount		\$ 75,000
Allowance for credit losses		175,000
Cash		750,000

Yield is “fixed” so existing systems can handle the amortization

- Must allocate non-credit component to each asset (exception – pools previously accounted for under ASC 310-30)
- Permits increases in expected cash flows to be recognized immediately
- Scope
 - Was PCI (Purchased Credit Impaired) assets
 - “Significant” credit deterioration since origination
 - Revised and renamed to PCD (Purchased Credit Deteriorated)
 - “More than insignificant” credit deterioration since origination
 - Did not expand the scope to apply to either all acquired financial assets or all assets acquired in a business combination

Non-PCD Loans: Impact

- Assume \$1,000,000 loan
- 2.5% lifetime credit loss expectation currently and at origination
- Coupon is effectively market rate of return required at acquisition

Key Point!
 Purchased loans not in scope will record allowance for credit losses through earnings at acquisition

CECL Acquired Loans - Non-PCD

Loan - par amount	\$	1,000,000	
Loan-noncredit discount	\$		-
Loan-credit related discount	\$		25,000
Cash	\$		975,000
Provision expense	\$	25,000	
Allowance for credit losses	\$		25,000
<i>Carrying value of non-PCD Loan</i>	\$		950,000

Current GAAP Acquired Loans - ASC 310-20

Loan - par amount	\$	1,000,000	
Loan-noncredit discount	\$		-
Loan-credit related discount	\$		25,000
Cash	\$		975,000

Provision made under incurred loss model as needed.

Carrying value of non-PCD Loan \$ 975,000

Effective Dates

- PBEs that meet the definition of an SEC filer: fiscal years beginning after Dec. 15, 2019, including interim periods within those fiscal years (Q1 2020 for calendar year ends)
 - SEC Filer - An entity that is required to file or furnish its financial statements with either of the following:
 - a. The Securities and Exchange Commission (SEC)
 - b. With respect to an entity subject to Section 12(i) of the Securities Exchange Act of 1934, as amended, the appropriate agency under that Section.
 - Financial statements for other entities that are not otherwise SEC filers whose financial statements are included in a submission by another SEC filer are not included within this definition.
- Other PBEs: fiscal years beginning after Dec. 15, 2020, and interim periods within those fiscal years (Q1 2021 for calendar year ends)
- Non PBEs: fiscal years beginning after Dec. 15, 2020, and interim periods within the fiscal years beginning after Dec. 15, 2021 (as of 1/01/2021, but recorded in Q4 2021)
- Early adoption is permitted for fiscal years beginning after Dec. 15, 2018, including interim periods within those fiscal years

Interagency CECL Guidance

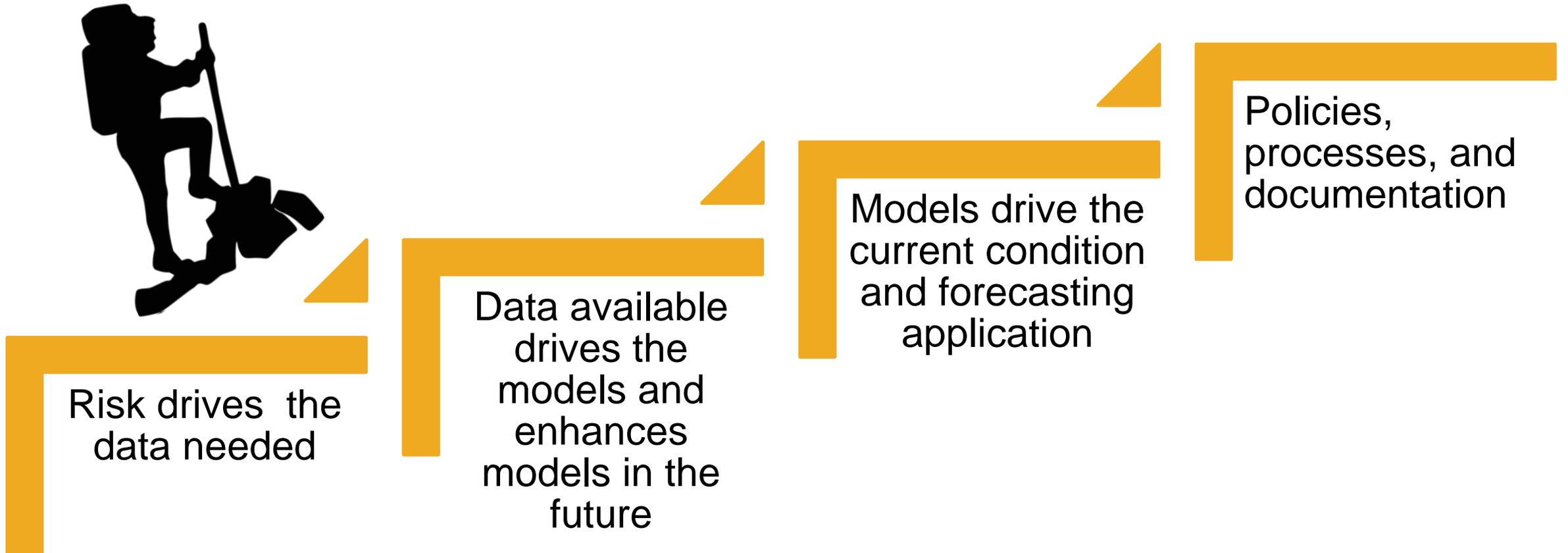
- From the Federal Financial Institution Regulators

- June 17, 2016 – Four federal financial institution regulatory agencies issued a statement, “Joint Statement on the New Accounting Standard on Financial Instruments – Credit Losses”
- “Frequently Asked Questions (FAQs) on the New Accounting Standard on Financial Instruments – Credit Losses”
 - Dec. 19, 2016 (Questions 1–23)
 - Sept. 6, 2017 (Questions 24–37)
 - The 14 additional frequently asked questions:
 - Discuss initial supervisory views with respect to qualitative factors, data needs, and the use of the collateral-dependent practical expedient.
 - Summarize accounting for changes in expected credit losses for purchased financial assets with credit deterioration under CECL in periods after their acquisition date.
 - Outline the new accounting standard’s definition of a public business entity (PBE), discuss how PBE status affects implementation of the new credit losses standard, and provide considerations for an institution to evaluate when assessing whether it is a PBE.
 - Describe how and when an institution must incorporate the new credit losses standard into its regulatory reports, providing examples for an institution with a
 - calendar fiscal year that is not a PBE.
 - non-calendar fiscal year.



Practical Risk Assessment

Where to begin?



Risk Identification/Data Inventory



- Four categories of data to consider (example):

Loan Attributes

- **Financial asset type**
- **Size**
- **Effective interest rate**
- **Acquired or originated**

Credit Characteristics

- **Risk rating**
- **Credit score**
- **Policy exceptions**
- **LTV**
- **DSCR or DTI**
- **Historical credit loss patterns**
- **Loss History Needed**

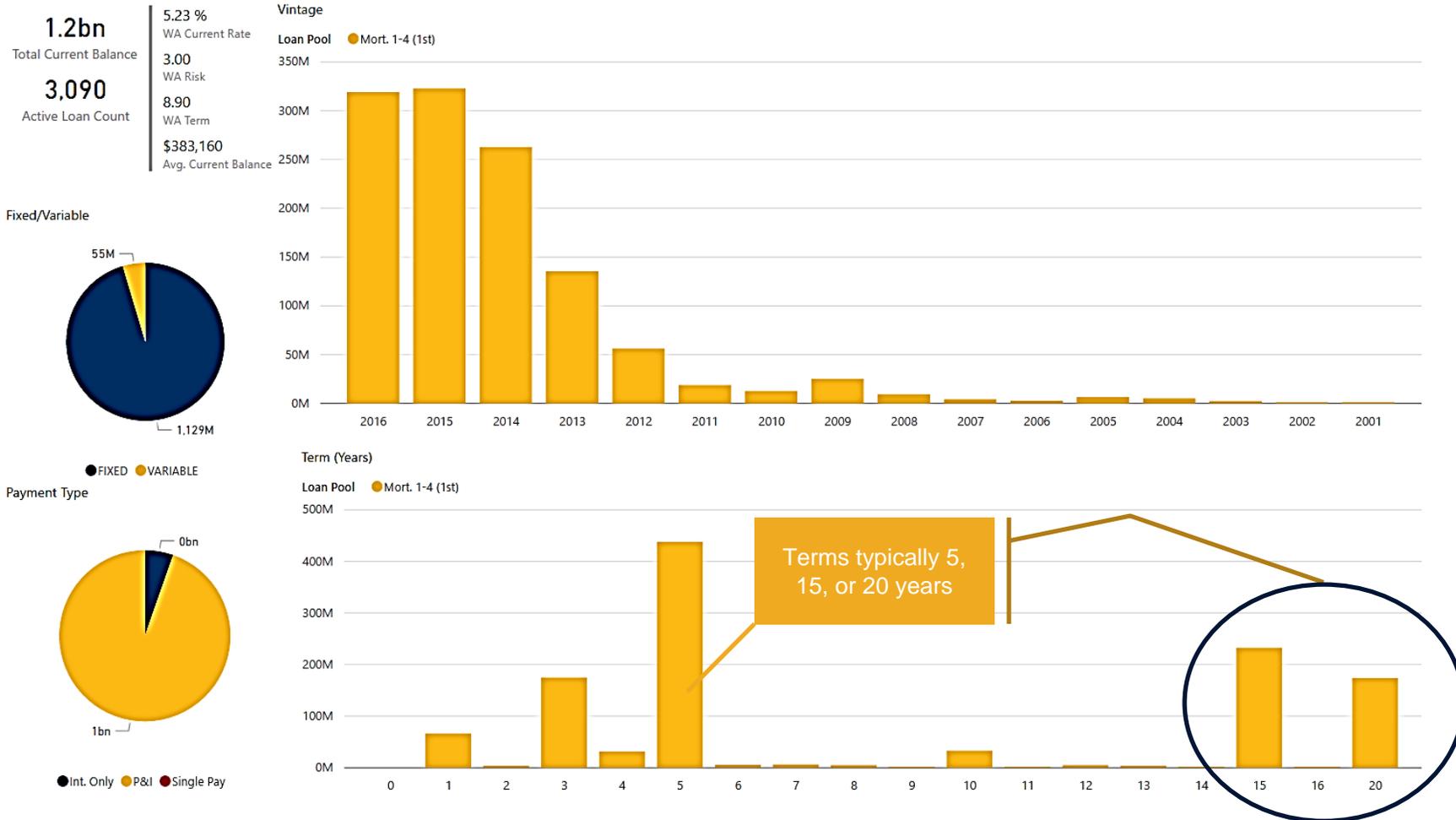
Structure

- **Payment Type**
- **Vintage**
- **Term**
- **Rate structure**
- **Prepayments**

Economic and Geographical

- **Collateral type**
- **Economic sector**
- **Industry of the borrower**
- **Geographical information**

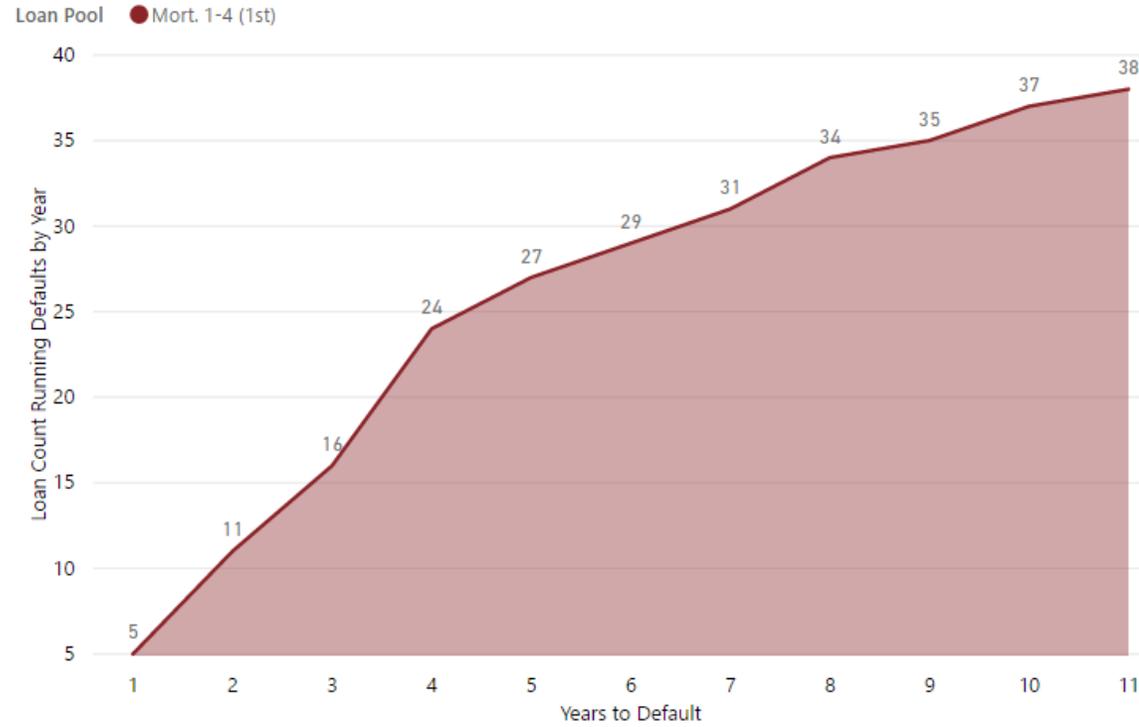
Mort. 1-4 (1st): Structure



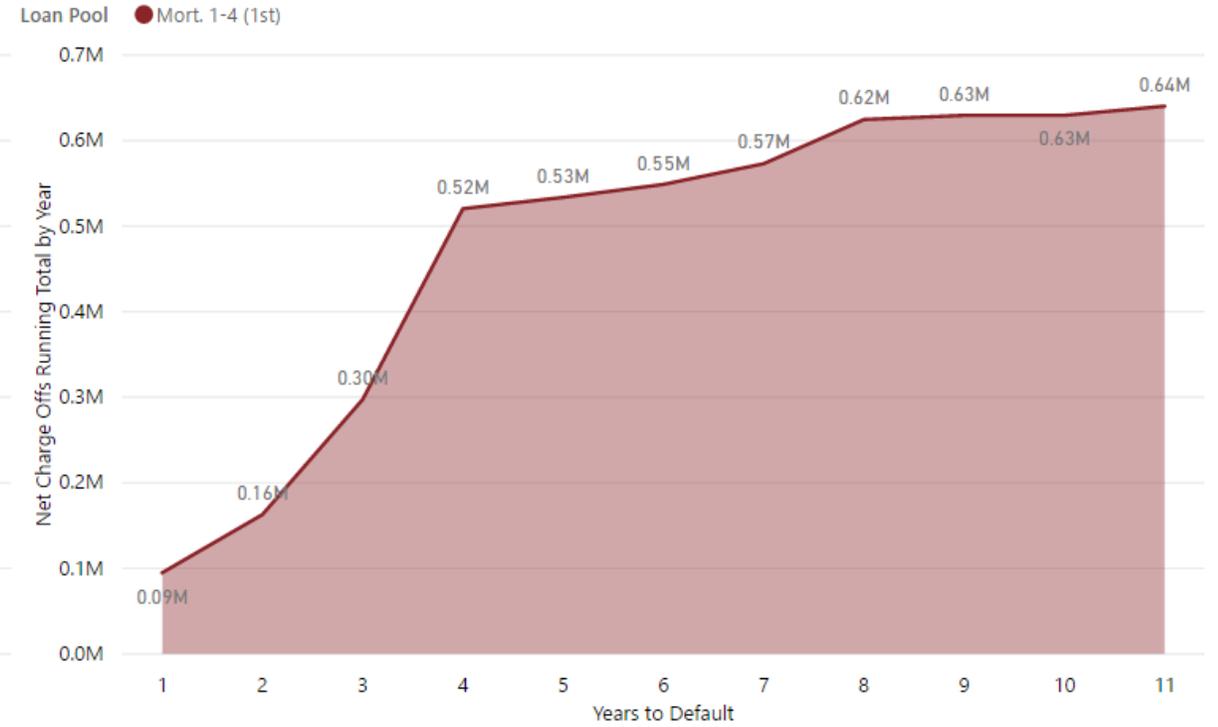
Mort. 1-4 (1st): Default Curve



Cumulative Defaults



Cumulative Losses





Models and Methodologies

Modeling Approaches

- **Portfolio Level or “Top-Down” Approach**
 - Require less data than loan level.
 - Well suited for homogeneous portfolios.
 - The level of granularity depends on the level of homogeneity in the portfolio.
 - Segmentation may consider:
 - Vintage
 - Product Type/Payment structure
 - Risk Characteristics such as loan to value or loan grading/rating
 - Geography
 - Call Report code
- **Loan Level or “Bottom-Up” Approach**
 - Requires granular historical loan level data.
 - Well suited for heterogeneous portfolios.
 - Used in probability and loss given default models.
 - Model estimate is granular.
 - Model estimate is reflective of changes in loan level characteristics over time.

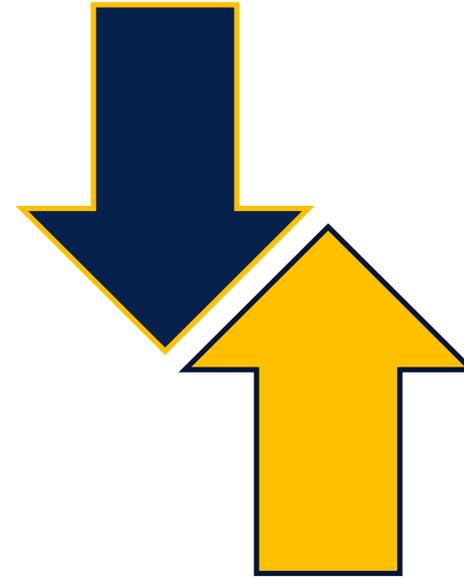
Changes to Current Methodologies Under CECL

- **Loss-rate model**

- Open pool - Cumulative credit loss
- Closed pool - Vintage/static pool

- **Component loss models**

- Probability of default
 - Roll-rate (migration analysis)
 - Rating transition models
 - Regression
- Loss given default/severity
- Exposure at default
- Discounted cash flow



Pooled Loss-Rate Approach – Example 1

- ASC 326-20-55-18 through 55-22
- Facts
 - \$3 million pool of 10-year amortizing loans with similar risk characteristics
 - Originated over the last 10 years (i.e. not all same vintage)
- Methodology / Approach
 - Develop 10 year loss rate
 - Believe most recent 10 years is reasonable period to base loss expectation
 - Determined historical lifetime credit loss rate based on sum of all credit losses for similar pool
 - Historical loss rate developed – 1.5%

Pooled Loss-Rate Approach – Example 1 (con't)

- Develop Qualitative Factors
- Considered qualitative adjustments to historical loss rate due to differences in current asset specific risk characteristics (ASC 326-20-30-8)
 - No necessary adjustments
- Considered significant factors that could affect the expected collectability of the pool (ASC 326-20-55-4)
 - Primary factors determined to be:
 - Real estate values - current has declined and expected to continue to decline in next 1-2 years
 - 10 basis point adjustment determined to be necessary
 - Unemployment rates – current increased and expected to continue to increase in next 1-2 years
 - 5 basis point adjustment determined to be necessary
 - No further adjustments as management determined it could not support an estimate of real estate values or unemployment beyond this forecast period and utilized an immediate reversion technique
- Total pooled loss rate – 1.65%

How the Process Differs (Incurred vs. CECL)

Period Ending	XYZ Call Code Amortized Cost	XYZ Call Code Annual Loss	Incurred Loss Example		CECL Example	
			XYZ Annual Loss Rate (%)		XYZ Call Code 2010 Loss	
2010	\$ 1,500,000	\$ 4,000	0.28%		\$ -	
2011	1,610,000	4,300	0.28%		3,900	
2012	1,730,000	4,600	0.28%		3,700	
2013	1,850,000	4,900	0.27%		3,400	
2014	1,980,000	5,300	0.28%		3,200	
2015	2,120,000	5,700	0.28%		2,900	
2016	2,270,000	6,100	0.28%		2,400	
2017	2,430,000	6,500	0.28%		2,000	
2018	2,610,000	7,000	0.28%		1,000	
2019	2,800,000	7,500	0.28%		-	
2020	3,000,000	8,000	0.28%		-	
		\$ 63,900				
			0.28% 1 Year Emergence (%)		\$ 22,500	2010 - Cumulative Loss
			+ 0.50% Q-Factor (Hypothetical)		÷ \$ 1,500,000	2010 Ending Balance XYZ Call Code
			= 0.78% Total Incurred Loss (%)		= 1.50%	10 Year Cumulative Loss (%)
			x \$ 3,000,000 Year-end 2020 XYZ Call Code		+ 0.00%	Q-Factor for Current Conditions
			= \$ 23,300 Total Incurred Loss (\$)		+ 0.10%	Q-Factor - Forecast RE Values
					+ 0.05%	Q-Factor - Forecast Unemployment
					+ 0.00%	Other Forecast
					= 1.65%	Total Expected Loss (%)
					x \$ 3,000,000	Year-end 2020 XYZ Call Code
					= \$ 49,500	Total Expected Loss (\$)

Losses only attributable to loans outstanding at 2010 Year End

What is the Magic?



- Understand the models pros and cons

Cumulative Loss-Rate Model Pros	Cumulative Loss-Rate Model Cons
Simpler math than other models	Assumes steady state (terms/product mix, prepayment, collateral values, etc.)
Data might be easier to obtain than other models	Support needed for similar risk characteristics – may prefer disaggregation beyond current state of ALLL
Qualitative factors likely a simple “top of model” adjustment	“Top of model” adjustments are harder to support

- All of these “pros” and “cons” exist today
- New in CECL - need to figure out “reasonable and supportable forecasts”

Magic is understanding “steady-state” and determining documentation required

What If You Don't Have Historical Lifetime?

- Example includes 10 year amortizing and 10 year historical.
 - May not have 10 years of internal data...

ASC 326-20-30-8 Historical credit loss experience of financial assets with similar risk characteristics generally provides a basis for an entity's assessment of expected credit losses. Historical loss information can be internal or external historical loss information (or a combination of both). An entity shall consider adjustments to historical loss information for differences in current asset specific risk characteristics, such as differences in underwriting standards, portfolio mix, or asset term within a pool at the reporting date or when an entity's historical loss information is not reflective of the contractual term of the financial asset or group of financial assets.

- Likely have following options:
 - Obtain relevant external data
 - Utilize a qualitative factor
 - Materiality analysis

Steady-state – Qualitative Factors Tomorrow

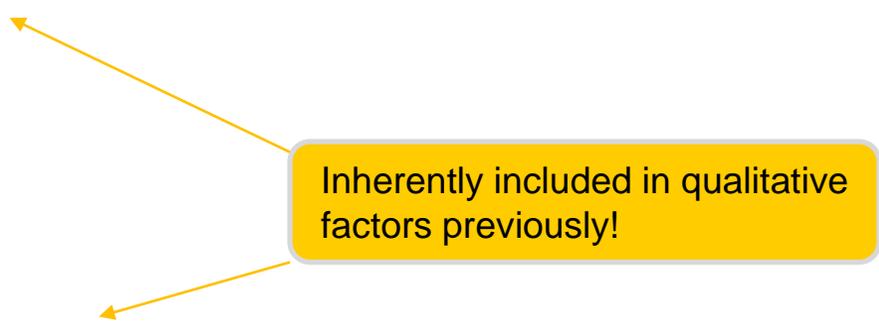
- Basing loss rate on history assumes a few things.

- Pool looks the same (ASC 326-20-30-8)

- Underwriting
- Portfolio mix
- Distribution of maturities
- Other factors

- Other items are the same (ASC 326-20-30-9)

- Unemployment rates
- Property values
- Commodity values
- Delinquency
- Other factors



Inherently included in qualitative factors previously!

Open Pool - Cumulative Credit Loss Example (6 Year Period)

6 Year Fully Amortizing Pool											
Historic Loss Experience											
	20X1	20X2	20X3	20X4	20X5	20X6	20X7				
Amortized Cost	\$ 100,000	\$ 60,000	\$ 40,000	\$ 20,000	\$ 15,000	\$ 5,000	\$ -				
20X1 Pool Losses, net		225	300	190	50	10	(20)	\$ 755	(1) Cumulative Losses Observed		
Annual Loss %		0.23%	0.50%	0.48%	0.25%	0.07%		\$ 100,000	(2) 20X1 Balance Outstanding		
								0.76%	(3) Open Pool Loss Rate (1) / (2)		
Historic Economic Factors											
	20X1	20X2	20X3	20X4	20X5	20X6	20X7	Forecast Period			
Unemployment - Local	5%	6%	7%	6%	5%	5%	5%	???	???	???	???
WRM - Years	1.9	2.4	2.4	2.4	2.2	2.2	2.3				
Portfolio Balance	\$ 100,000	\$ 105,000	\$ 110,250	\$ 115,763	\$ 121,551	\$ 127,628	\$ 134,010	(4) Ending Balance of Pool			
							0.76%	(3) Open Pool Loss Rate			
							\$ 1,012	(5) Allowance for credit losses (3) * (4)			

Considerations:

- Loss trends to current period - Note spike in 20X3 in losses and unemployment trends. 25bps increase in annual loss rates for 2 years, does that mean anything? Would it be a base for Q factor in forecasting, convert to LOL loss needed.
- Unemployment forecast is open, what adjustments may be needed?
- Product lifing has increased, 1.9 years vs. 2.3 years. Does this matter?
- How are current lending practices embedded in 20X7 relevant to 20X1, policy changes, personnel changes, monitoring changes?
- Had recoveries into 20X7, should we go with what we have now and consider monitoring into 20X8?

Closed Pool – Vintage/Static Pool/Cohort Loss Rate Model

YEAR OF ORIGIN	ORIGINATED BALANCE	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL LOSS %	REMAINING LOSS EXPECTED %	\$ EXPECTED
	(a)							(b)	(a) x (b)
20X1	\$25,000	0.300%	0.900%	0.900%	0.600%	0.300%	3.00%		
20X2	26,250	0.325%	0.975%	0.975%	0.650%	0.325%	3.25%		
20X3	27,563	0.300%	0.900%	0.900%	0.600%	0.300%	3.00%		
20X4	28,941	0.325%	0.975%	0.975%	0.650%	0.325%	3.25%		
20X5	30,388	0.325%	0.975%	0.975%	0.650%	0.325%	3.25%	0.325%	99
20X6	31,907	0.325%	0.975%	0.975%	0.650%	0.325%	3.25%	0.975%	311
20X7	33,502	0.325%	0.975%	0.975%	0.650%	0.325%	3.25%	1.950%	653
20X8	35,178	0.500%	0.975%	0.975%	0.650%	0.325%	3.25%	2.925%	1,029
20X9	36,936	0.325%	0.975%	0.975%	0.650%	0.325%	3.25%	3.250%	1,200
									\$3,293

Closed Pool – Vintage/Static Pool/Cohort Loss Rate Model

PROs	CONs
Isolates changes in economic environment, collateral value, underwriting, etc.	Data required can be extensive based on level of disaggregation. May be data limited on historical look-back period.
Improves forecasting ability the more data sets collected	Day 2 calculations may give unusual results. (e.g., 20X5 all prepaid in Year 4)
Eliminates changes in portfolio growth	May require tracking more attributes to reconcile Day 2 activity to base assumption
Methodology could be utilized to develop other assumptions through study (prepayment, default probability, severity/LGD).	May have significant number of pools to track.

Probability and Loss Given Default (“Bottom-up”)

- Methodology gaining popularity after mentions in Basel II, Basel III and FASB CECL guidance
- Currently used by larger institutions, primarily



- PD (probability of default): the likelihood that a borrower will default over a certain time period. Under CECL this needs to capture lifetime default probability.
- LGD (loss given default): magnitude of the loss in the event of default
- EAD (exposure at default): an estimate of the outstanding amount in the event a borrower defaults

Probability of Default - Assumptions

- **Probability of Default (PD) Models**

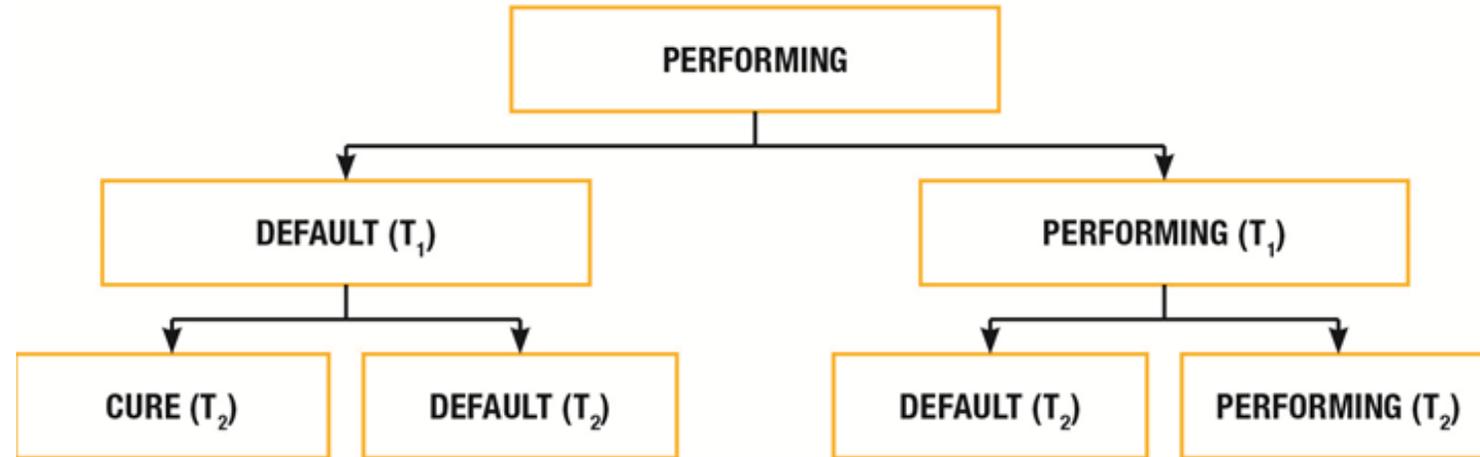
- Vintage default curve
- Ratings transition
- Logit regression
- Hazard/Survival

- **Definition of default**

- May look to Basel definition
- May be different for different portfolios
- Typically more than 90 days past due or foreclosure triggers
- Important to keep data driven as opposed to trying some judgmental approach.
- Define it and track.

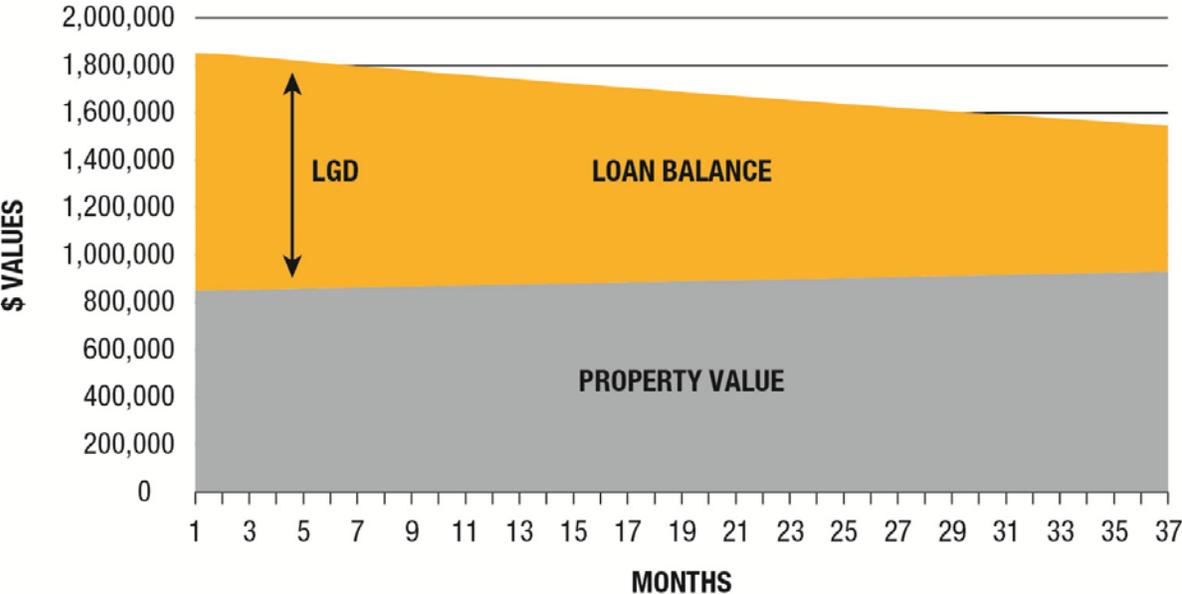
- **Consider cure rates**

- Effect of borrower being able to correct default without resultant loss



Loss Given Default

LGD = (Net Principal Balance – Collateral Value) / Net Principal Balance



- Study of charge-offs over extended cycles
- Benchmark data from bond studies
- May be able to forecast current property values using various indices and original LTV or appraisal:
 - HPI
 - CPPI
 - Core logic or other third party providers

PD x LGD x EAD = ECL

PD	LGD	EAD	ECL
20%	20%	\$100,000	\$4,000

Discounted Cash Flow

BALANCE	1,000,000	DISCOUNT RATE	3.00%	ANNUAL CPR	5.87%	DEFAULT SMM	0.08%
MATURITY	12	RECOVERY LAG	6	PREPAYMENT SMM	0.5028%	SEVERITY/LGD	10.00%
AMORTIZATION	240	COUPON	3.00%				

	GROSS BALANCE	PRE- PAYMEN	DEFAULT & DISCOUNT	ADJUSTED BALANCE	ACTUAL PRINCIPAL	ACTUAL INTEREST	TOTAL PRINCIPAL REDUCTION	RECOVERY	TOTAL CASH FLOW	PV OF TOTAL CASH FLOW	PRESENT VALUE CALC	ALLOWANCE UNDER CECL
\$	1,000,000										993,472	6,528
1	990,826	\$ 5,011	\$ 837	\$ 994,152	\$ 3,326	\$ 1,764	\$ 9,174	\$ -	\$ 10,101	\$ 10,076		
2	981,754	4,965	829	985,032	3,278	1,830	9,072	-	10,073	10,022		
3	972,761	4,919	822	976,013	3,251	1,845	8,992	-	10,016	9,941		
4	963,855	4,874	814	967,073	3,217	1,878	8,906	-	9,969	9,870		
5	955,025	4,830	807	958,219	3,194	1,887	8,830	-	9,910	9,787		
6	946,276	4,785	800	949,440	3,165	1,909	8,750	-	9,859	9,712		
7	937,607	4,742	792	940,742	3,135	1,932	8,669	753	10,563	10,380		
8	929,015	4,698	785	932,124	3,109	1,949	8,592	747	10,502	10,295		
9	920,500	4,655	778	923,582	3,082	1,968	8,515	740	10,444	10,212		
10	912,072	4,612	771	915,117	3,045	2,012	8,428	733	10,402	10,146		
11	903,709	4,570	764	906,738	3,030	2,003	8,363	726	10,329	10,049		
12	-	-	757	902,952	902,952	2,022	903,709	720	905,694	878,960		
13	-	-	-	-	-	-	-	713	713	690		
14	-	-	-	-	-	-	-	706	706	682		
15	-	-	-	-	-	-	-	700	700	674		
16	-	-	-	-	-	-	-	694	694	666		
17	-	-	-	-	-	-	-	687	687	659		
18	-	-	-	-	-	-	-	681	681	651		

PROs

Models contract terms/life explicitly

Discrete & customizable assumptions

CONs

Assumption build is complex

Data management and processing power



Roadmapping & Making the Transition

Making the CECL Transition

Governance and Oversight

Understanding risk management practices surrounding the development, execution, and maintenance of the CECL model. This includes established roles and responsibilities of the board and senior management, as well as policies and procedures in place to articulate the expectations of the CECL model and ongoing execution of the model.

Enabling Technology

Understanding the existing systems, including the capabilities and limitations of those systems that may support the execution of the CECL model. This includes source systems, data warehouses, modeling systems, financial statement spreading software, and vendor technology specially designed for CECL.

Risk Identification

Understanding portfolio characteristics and key drivers of portfolio performance, including lending attributes, loan structures, prepayment risks, and changes in the macroeconomic environment. This component will enable the credit union to appropriately segment and model the portfolios based on common drivers of risk.

Data Inventory

Understanding the availability and limitations of data required to develop and maintain an effective CECL model. This includes the reliability and accuracy of data elements in addition to the historical time horizon of data availability.

Resource Capabilities

Understanding the capabilities and limitations of the human resources identified to develop and execute on the CECL model.



Data Inventory



- **Results of risk identification:**

- Based on the preliminary risk assessment and analysis of the portfolio, what data is collected today and what are the goals for long-term data capture?
- How can current systems and processes be utilized?
- What is the desired end-state and what are the priorities to get there?

- **Assess current state of data inventory capabilities and consider ancillary sources of loan data:**

- Is there a data warehouse provided via the Core or report-writer software interface?
- How frequently are credit quality indicators updated and how are these archived (if at all)?
 - Delinquency statistics and counters
 - FICO
 - Risk rating
 - Property values
 - Collateral codes

Data Inventory



- **Assess current state of data inventory capabilities and consider ancillary sources of loan data (continued):**
 - What information may be available to build historic life of loan datasets?
 - Does treasury management or lines of business maintain archives accounting and risk management aren't aware of?
 - How will those data points be validated and auditable?
 - Are there previous mergers and/or portfolio acquisitions to consider?
 - Is prepayment data important for consideration and is this tracked at a disaggregated basis?
 - Is original balance, date of origination, and charge-off/recovery information available for loss rate methods and vintage analysis?
 - Is draw activity on lines of credit or other non-cancellable commitments available?

Data Inventory



- **Assess current state of data inventory capabilities and consider ancillary sources of loan data (continued):**
 - What forecast data is available?
 - Is there data utilized for stress testing purposes that may be leveraged?
 - Is there data that is periodically updated and overwritten?
 - Is there origination data that is rarely refreshed?
- **Key Point - Data availability may drive the models used upon implementation, but data can be captured over time to enhance or improve the model. Have an end goal in mind throughout the process.**

Data Inventory



- **Consider common data issues observed:**

- Amortization structures are often not easily displayed in data cuts.
- Data purges occur upon loan charge-off in some systems, especially those without shadow ledgers.
- Transition details on defaults and risk ratings are often not archived in the system.
- Credit Unions do not regularly update consumer credit scores and/or data fields are over-written.
- Collateral information is often in separate systems and appraisal dates may be missing or non-existent.
- Product specific characteristics and manual overrides – example 5/1 ARM products manually maintained.

- **Assess quality of the data inventoried to date:**

- Scrub portfolio for anomalies and data quality issues for example:
 - Missing fields
 - Unusual rates, balances, and terms at the cohort level
 - Undefined collateral and loan type codes

Data Inventory



Potential critical data elements

- **Structural elements and identifiers:**
 - Account or loan number
 - Loan type or purpose
 - Borrower/guarantor identities
 - Current balance
 - Commitment amount at origination
 - Origination balance
 - Origination date
 - Renewal date (if origination date not reset)
 - Maturity date
 - Interest rate and type (fixed, variable including frequency)
 - Payment type (P&I, balloon, I/O, etc.)
 - Lien position and additional debt secured by property
 - Prepayment activity or support for “life of loan” assumptions

Data Inventory



- **Common risk identifiers:**

- Risk rating
- Date of risk rating change(s)
- NAICS or SIC code
- Location of borrower (city/state/zip)
- Location of collateral
- Property type or other collateral type
- Appraised values and dates for collateral
- Collateral coverage (LTV) at origination
- Current LTV
- DSCR/Debt to income ratios
- Net operating income ratio on commercial
- Capitalization rate on income producing real estate
- Occupancy rates
- Delinquency counts
- Current days delinquent

Data Inventory



- **Common methodology data elements:**

- Charge-off and recovery amounts by date and instrument
- Periodic segment balances (if using a loss rate method)
- Default and cure date (must define these triggers)
- Default reason
- Amount outstanding at default

- **Macroeconomic data:**

- Baseline domestic macroeconomic variables provided for CCAR and DFAST purposes
 - <http://www.occ.gov/tools-forms/forms/bank-operations/stress-test-reporting.html>
- Augmented by local indices
 - FDIC and FRED data
 - <https://www.fdic.gov/bank/analytical/stateprofile/>
 - <https://fred.stlouisfed.org/>

Resource Capabilities



- **Form a CECL committee or task force across the organization:**
- Who is needed for effective implementation?
 - Accounting
 - Project management
 - Lending operations
 - Credit risk
 - Model risk and audit
 - IT/data/business analyst
 - Finance/Treasury
 - Stress-testing and capital analyst
- Who is/are the model owner(s)?
- Who will be responsible for documenting the new policies and procedures?
- Who is responsible testing the methodology and independent validation (if warranted)?
- Do we have the right resources in place to implement and deliver on the end-goal?

Enabling Technology



- **Assess adequacy of credit data management in the context of CECL and broader corporate vision:**
 - Data standardization and aggregation for reporting and monitoring - establish a single and trusted source of credit data that serves the needs of all users
 - A front-to-back operating model - designed and managed with an end-to-end perspective. This means the risk and finance processes (and their relevant data) should be aligned for consistency, and all risk-related processes should be aligned with the organization's risk appetite
 - Appropriate infrastructure, architecture, and applications - methodically cover all material regulatory and management requirements, including both current requirements and those envisioned in the foreseeable future.
- **Assess methodologies and models needed to effectively implement CECL and progress to the end-goal:**
 - Determine regulatory and reporting environment expectations around auditability, system access, customization, and sustainability.
 - What level of automation is available for financial reporting and SEC disclosures?
 - Determine what/if any third party solutions may add efficiency or improve effectiveness.

Governance and Oversight – Risk Profile



- **Understand your risk profile:**

- Who are the financial statement users?
 - Analyst activity and expectations
 - Consider new accounting pronouncement disclosures
- Your relationship with your regulators?
 - Understanding impact to your capital levels with consideration to BASEL requirements
- Does your business strategy suggest a changing risk profile
 - Understand how CECL impacts strategic decisions such as M&A, product growth/concentrations, and new product development

Governance and Oversight – Financial Statement Users



- **Educate users**

- Analysts
- Shareholders
- Press

- **Relevance of historically relevant information vs relevance of assumptions driving CECL estimate**

- Past due
- Non-accrual
- TDRs
- Grades
- ALLL qualitative summaries (very historical in nature)

Governance and Oversight – ICFR



- **Development of precise controls to identify material misstatements**
 - SAB 102 and existing regulatory guidance will likely require robust policy and procedure documentation for public companies.
 - Effective controls should be established over data and data integrity.
- ICFR and model risk management approach should be complementary
- Coordination with external auditors

Governance and Oversight - Model Validation



- **Understanding risk management practices surrounding the development, execution, and maintenance of the CECL model**
 - Established roles and responsibilities of the board and senior management
 - Policies and procedures
- Model risk management principles and practices are in play

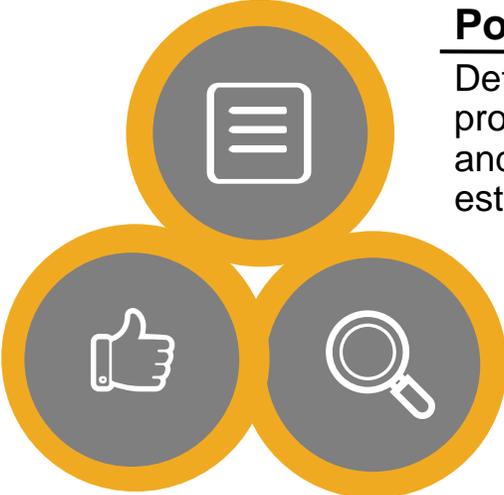
Model Validation Considerations

- How does effective challenge of the model and results take place?
- Is reporting on the model clear and comprehensive, including model performance?
- What are the plans to provide ongoing monitoring over the model?

Governance and Oversight – Additional Thoughts



Successful transition to the CECL-based methodology will require the active involvement of the supervisory committee, the board of directors, and senior management



Readiness

Determine the ability of management to promptly prepare the allowance estimate to accurately reflect the operations and results of the institution

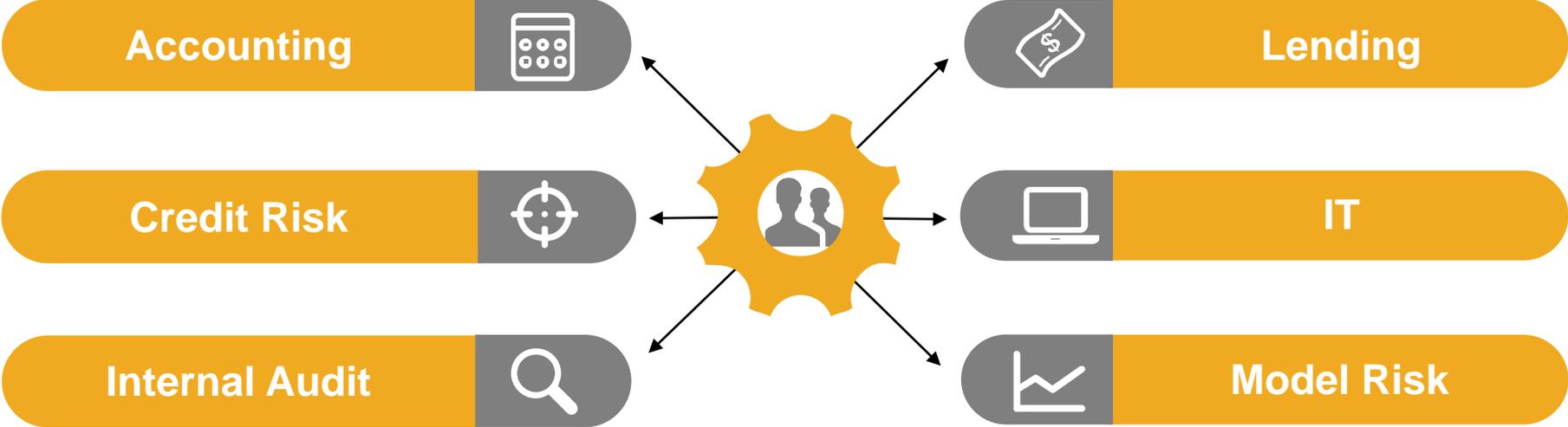
Policies and Procedures

Determine that policies and procedures have been drafted and implemented to effectively estimate allowance

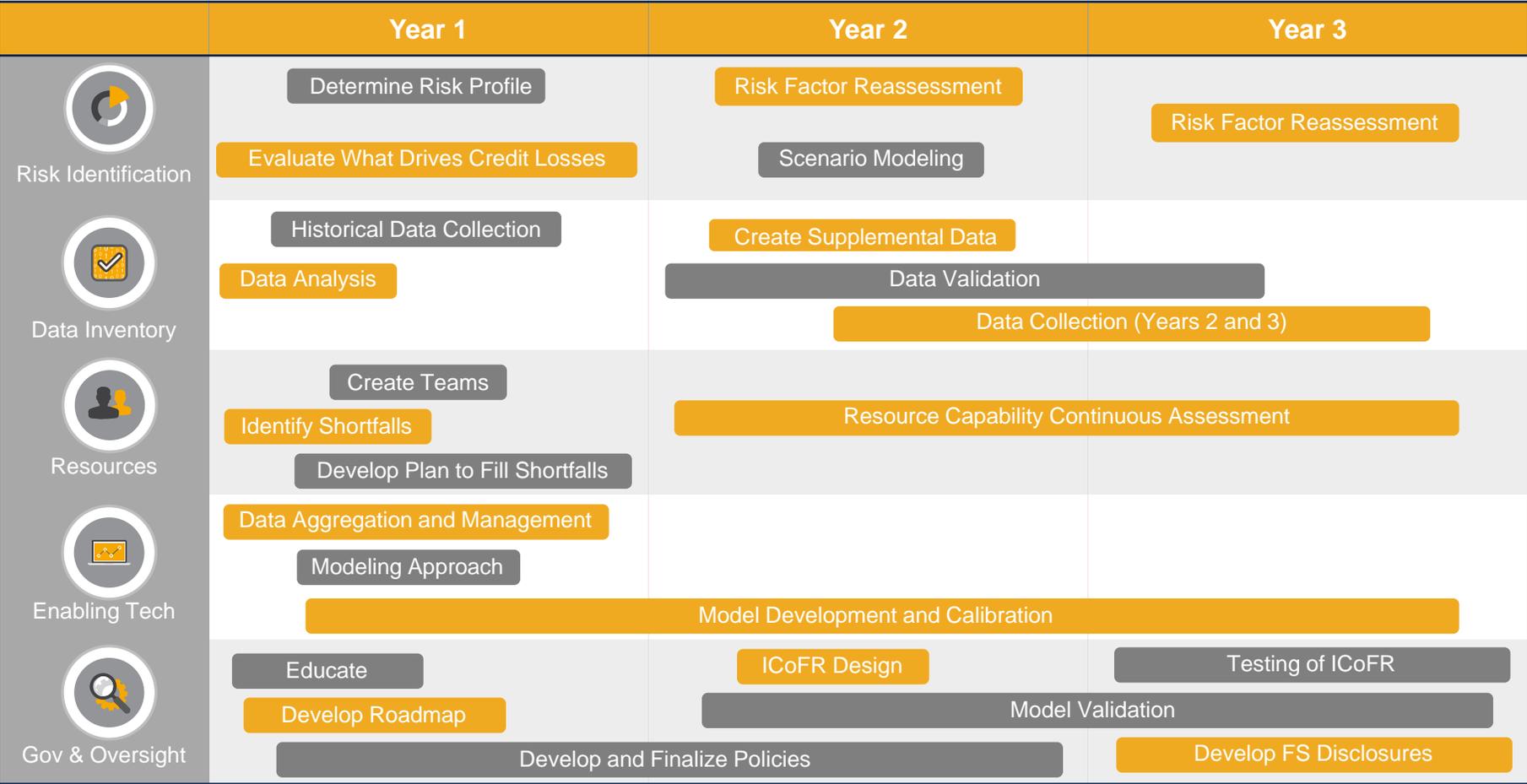
Internal Controls

Determine that management has established effective internal controls to meet financial reporting requirements

Governance and Oversight – Transition Readiness



Roadmap to Readiness – An Example

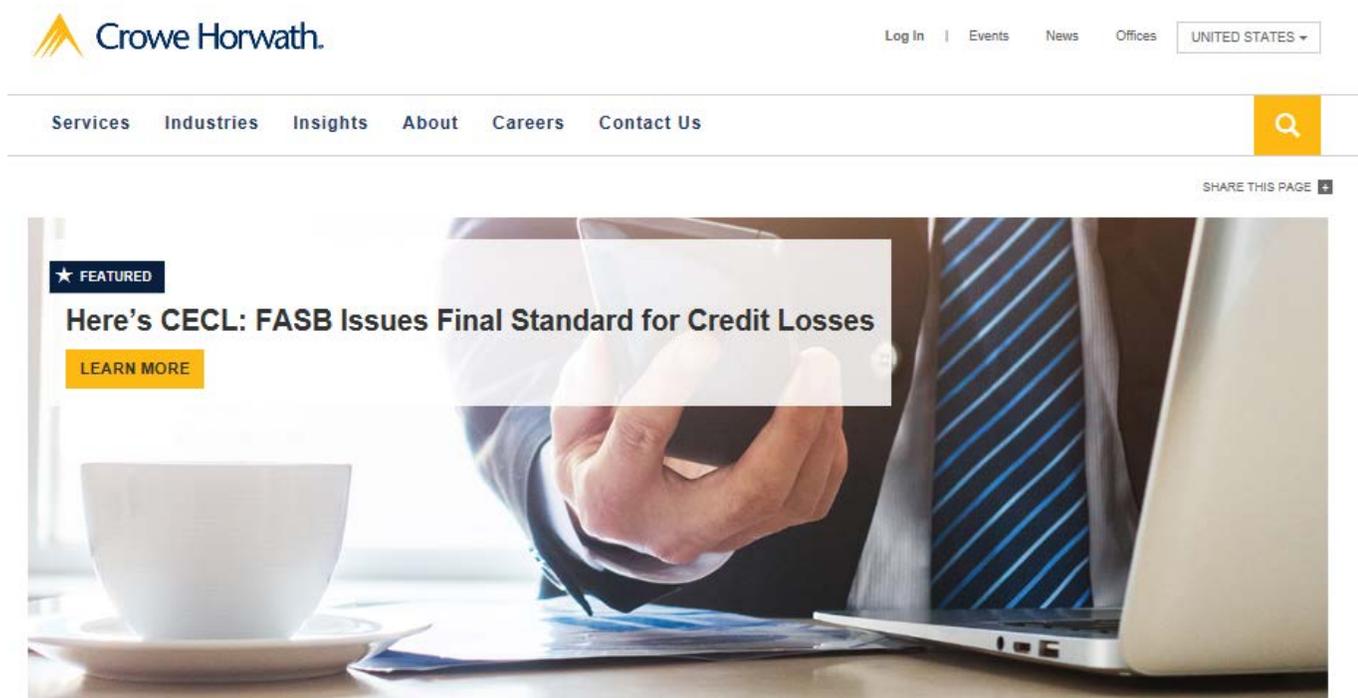




Reference Material

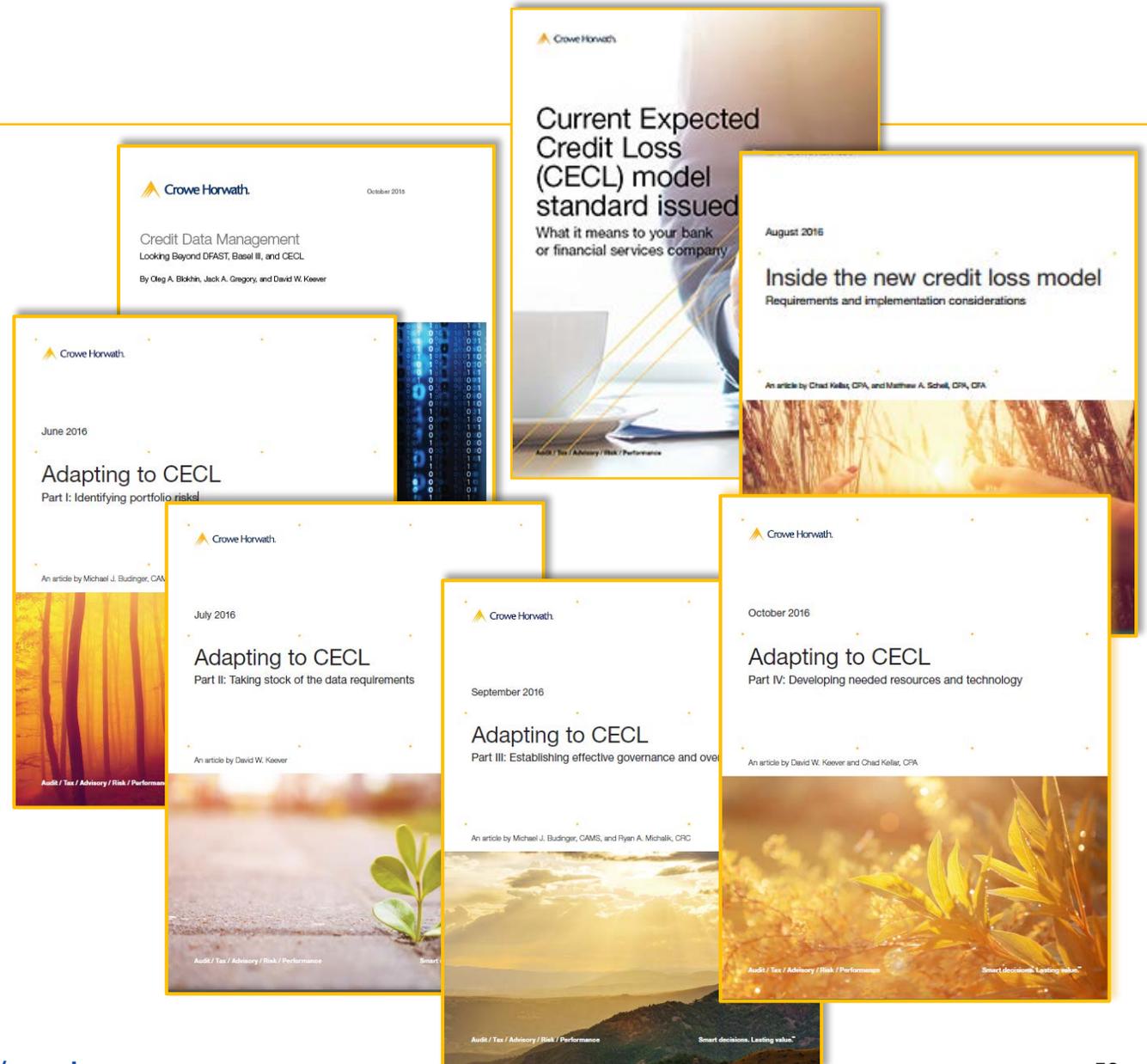
Crowe Resources

- Multi-discipline, cross-functional 'CECL Team'
 - Training and education
 - Collaborative and comprehensive thought leadership (www.crowehorwath.com/cecl)
- Dedicated resources to our profession



Crowe Resources: Credit Losses

- Adapting to CECL, Part 4: Developing Needed Resources and Technology (Oct. 2016)
- Adapting to CECL, Part 3: Governance and Oversight for Making the Transition (Sept. 2016)
- Inside the New Credit Loss Model (Aug. 2016)
- Adapting to CECL, Part 2: Taking stock of the data requirements (July 2016)
- Adapting to CECL, Part I: Identifying portfolio risks (June 2016)
- Here's CECL: FASB Issues Final Standard for Credit Losses (June 2016)
- Credit Data Management: Looking Beyond DFAST, Basel, and CECL (Oct. 2015)
- [Video: Transitioning to CECL: a 5 Part Series](#)



Kristin McDonner

Audit Partner

502-420-4494

Kristin.mcdonner@crowehorwath.com