

CECL Webinar Series: The Roadmap to Success

Jan Larsen, Director, Risk Measurement
Tanya Roosta, Associate Director, Advisory

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Today's Speakers



Jan Larsen
Director, Advisory

Jan Larsen is within Moody's Analytics Advisory team focused on the Americas. Jan and his team consult banks and other financial institutions on a broad range of credit- and liquidity-related issues, including: CCAR and DFAST stress testing; economic capital; PD, LGD, and EAD modeling and scorecard design; ALLL/CECL/IFRS9; liquidity assessments and ALM; valuation of fixed income securities; loan pricing; design and/or streamlining of processes related to underwriting, guarantor assessment, etc.



Tanya Roosta
Associate Director, Advisory

Tanya Roosta is an Engagement Manager and Associate Director within Moody's Analytics. In her current role, Tanya leads a variety of engagements across the spectrum of Risk Measurement products and services. Prior to this role, Tanya was a member of the Research team working on RiskCalc™ models.

Prior to Moody's Analytics, Tanya was a quantitative risk analyst and researcher with the San Francisco Federal Reserve Bank. She has also spent part of her career as a software and analytics engineer.

Moderator



Ed Young
Senior Director, Solutions Specialist

Ed Young is a Senior Director at Moody's Analytics. He advises clients across the Americas on risk management and regulatory expectations issues around capital planning, liquidity, and credit stress testing, as well as allowance for credit loss processes.

Prior to joining Moody's Analytics, Ed spent ten years working for the Federal Reserve. During his tenure, he participated on a multitude of Federal Reserve System initiatives related to capital planning, liquidity planning, stress testing, credit risk management, interest rate risk management, and model risk management.

Agenda

1. Overview of methodological approaches
2. Establish and defend “reasonable and supportable forecasts”
3. Towards a consistent view of credit risk
4. Impact analysis and CECL challenges
5. Conclusion

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Overview of
Methodological
Approaches

CECL

- » CECL requires banks to measure expected credit losses over the life of financial asset based on:
 - Past events, including historical experience
 - Current conditions
 - Reasonable and supportable forecasts
- » New disclosure requirements: amortized cost by credit quality indicators and vintage

CECL introduces complexity into the process of loan loss estimation

Your Starting Point

- ✓ Have capabilities, no perceived needs
- ~ Capabilities mixed, some needs
- ✗ Lack capability, have a need

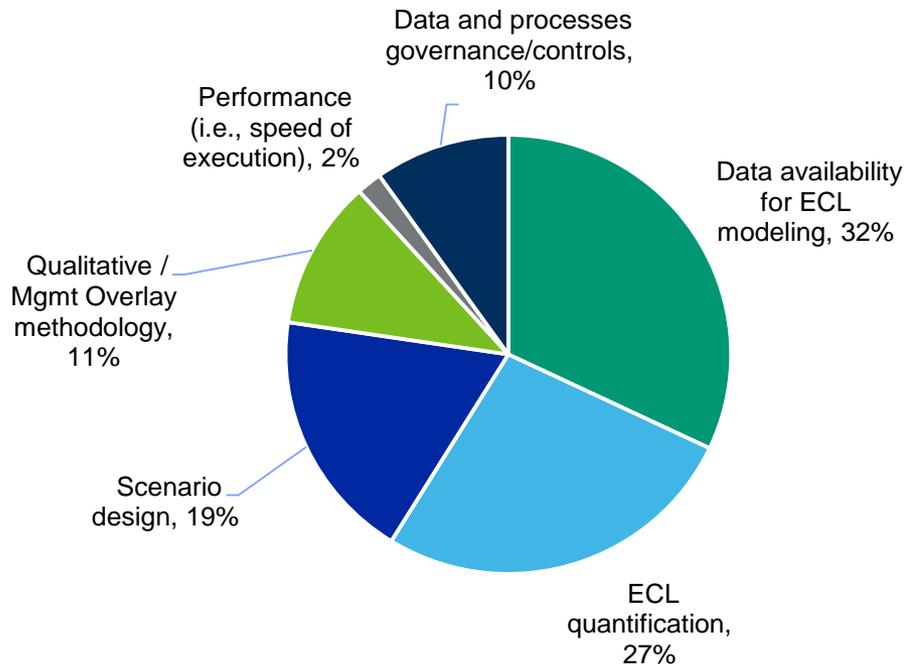
	<u>Capability</u>	<u>>50B</u>	<u><50B-10B</u>	<u><10B-5B</u>	<u><5B</u>
Data*	Anticipate having sufficient internal historical data for modeling	✓	~	~	~
	Generally data characteristics needed for CECL stored and callable	✓	~	✗	✗
Models	Have loan level (PD / LGD) models for material portfolios	✓	✗	✗	✗
	Models can be enhanced to incorporate economic forecasts	~	✗	✗	✗
Software / Reporting	Current systems can handle anticipated volume of calculations	~	~	✗	~
	Have sufficient management reporting / analytics capabilities today (or do not plan to improve in near term)	✗	✗	✗	~
	Have sufficient audit trail capabilities today (or do not plan to improve in near term)	✗	✗	✗	~
	Risk / Finance / Accounting would consider a cloud-based solution	~	~	✓	✓

Wide range of budget estimates based on readiness assessments to date

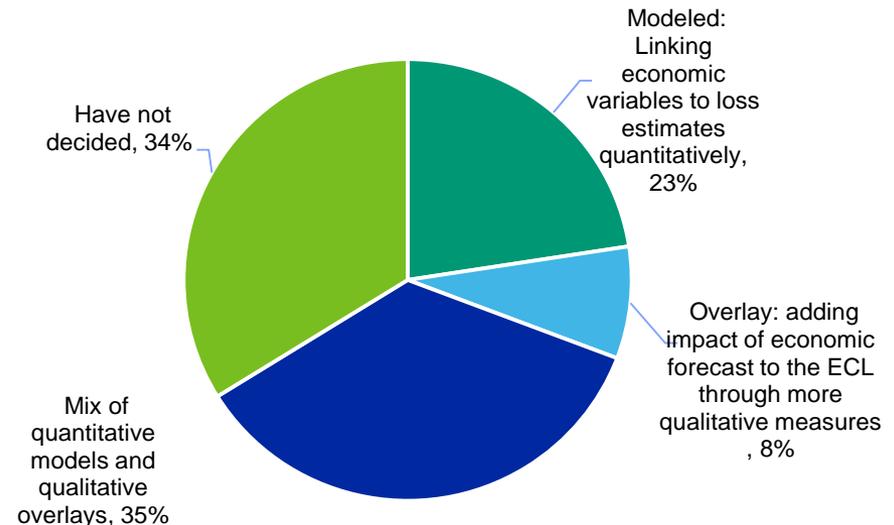
* Many CCAR firms are already supplementing their internal data with industry data

What We Are Hearing From the Industry

What is the most significant challenge you anticipate in CECL implementation?



How do you plan to incorporate forward-looking information to expected credit loss estimates?



Collected at Introduction to CECL Quantification Webinar, February 2017,

Wide Range of Acceptable Methodologies

- » DCF, using effective interest rate
 - Projection of effective rate not allowed for floating rate instruments
- » Loss rate
 - Adjustments needed to control for changes in portfolio composition over time
- » Roll rate methods
- » PD/LGD
- » Ageing methods
- » Vintage Analysis
 - Estimate term structure of losses, adjusting for differences between historical and forecasted economic conditions

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Establish and Defend
“Reasonable and
Supportable
Forecasts”

Reasonable and Supportable Forecasts

“The measurement of expected credit losses is based on relevant information about past events, including historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the reported amount. An entity must use judgment in determining the relevant information and estimation methods that are appropriate in its circumstances.”

Amendments allow an entity to revert to historical loss information that is reflective of the contractual term (considering the effect of prepayments) for periods that are beyond the time frame for which the entity is able to develop reasonable and supportable forecasts.

* Source: Page 3, Financial Instruments—Credit Losses (Topic 326), FASB, No. 2016-13, June 2016

Questions to Ask

- » How long is a reasonable and supportable forecast?
- » Is the forecast relevant to the firm's risk profile?
- » Is the forecast from a reliable source (either internal or external)?
- » How does one transition to the long run average?
- » What should the long run average be?
- » Is mean reversion asset agnostic, or should it be based on historical behavioral data (if available)?
- » Single scenario or multiple scenarios?

Mean Reversion

- » Mean reversion techniques:
 - Do not revert – each forecasting model has reversion built in
 - Revert to average historical PD
 - Revert to the historical loss
 - › Reversion can happen as a cliff or as a straight line or on the input side

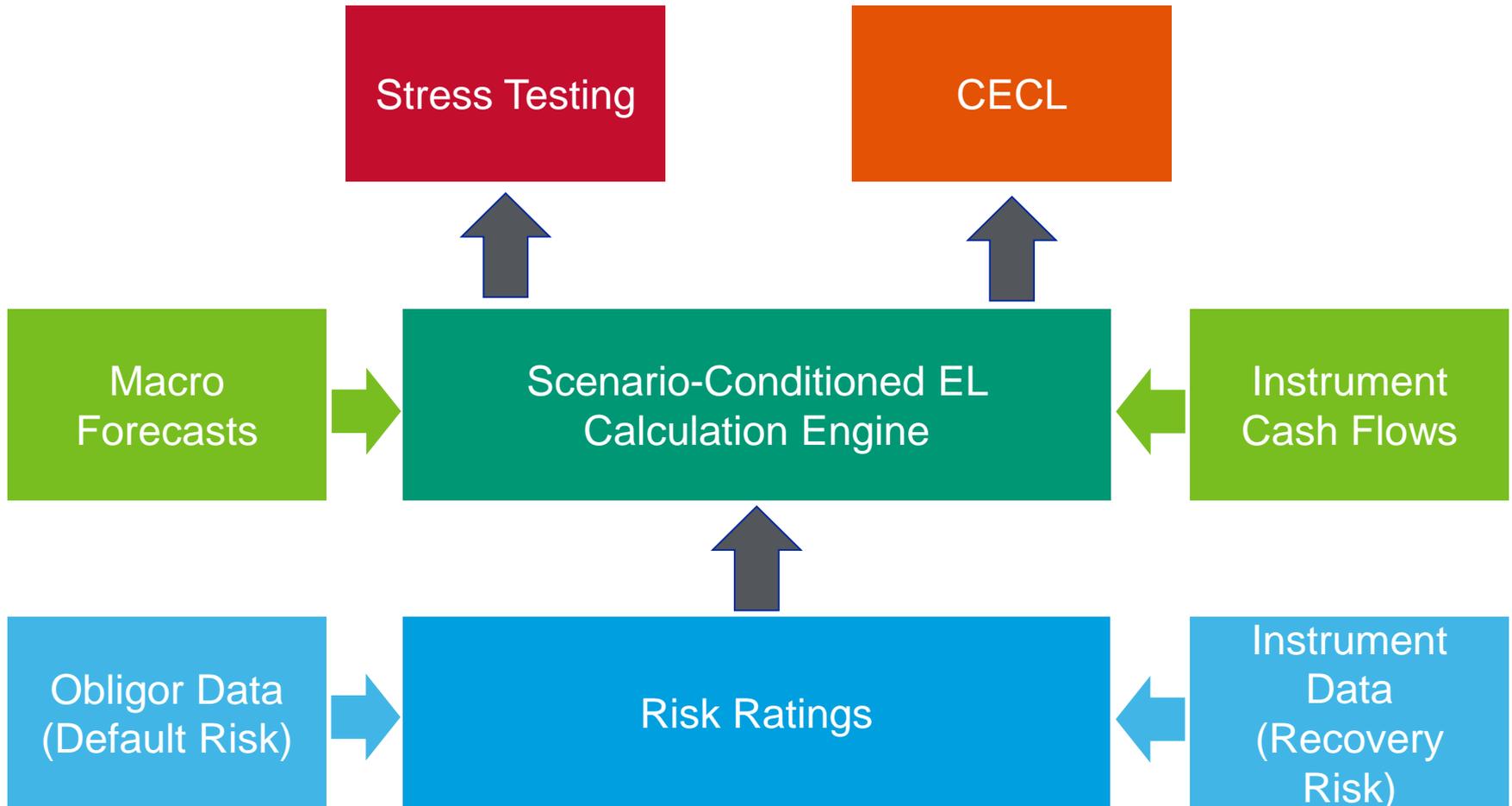
Deciding on Single vs. Multiple Scenarios

- » Use of a single scenario reduces the burden of having to defend multiple scenarios
- » On the other hand, bearing the burden of developing and defending multiple scenarios may pay off in the form of less volatile reserves and earnings
 - Example: suppose base scenario is weighted 70%, downturn scenario is weighted 15%, and optimistic scenario is weighted 15%.
 - The base scenario is likely to be relatively volatile because it will react to changes in current economic conditions
 - On the other hand, downturn and optimistic scenarios are likely to remain relatively stable through the economic cycle

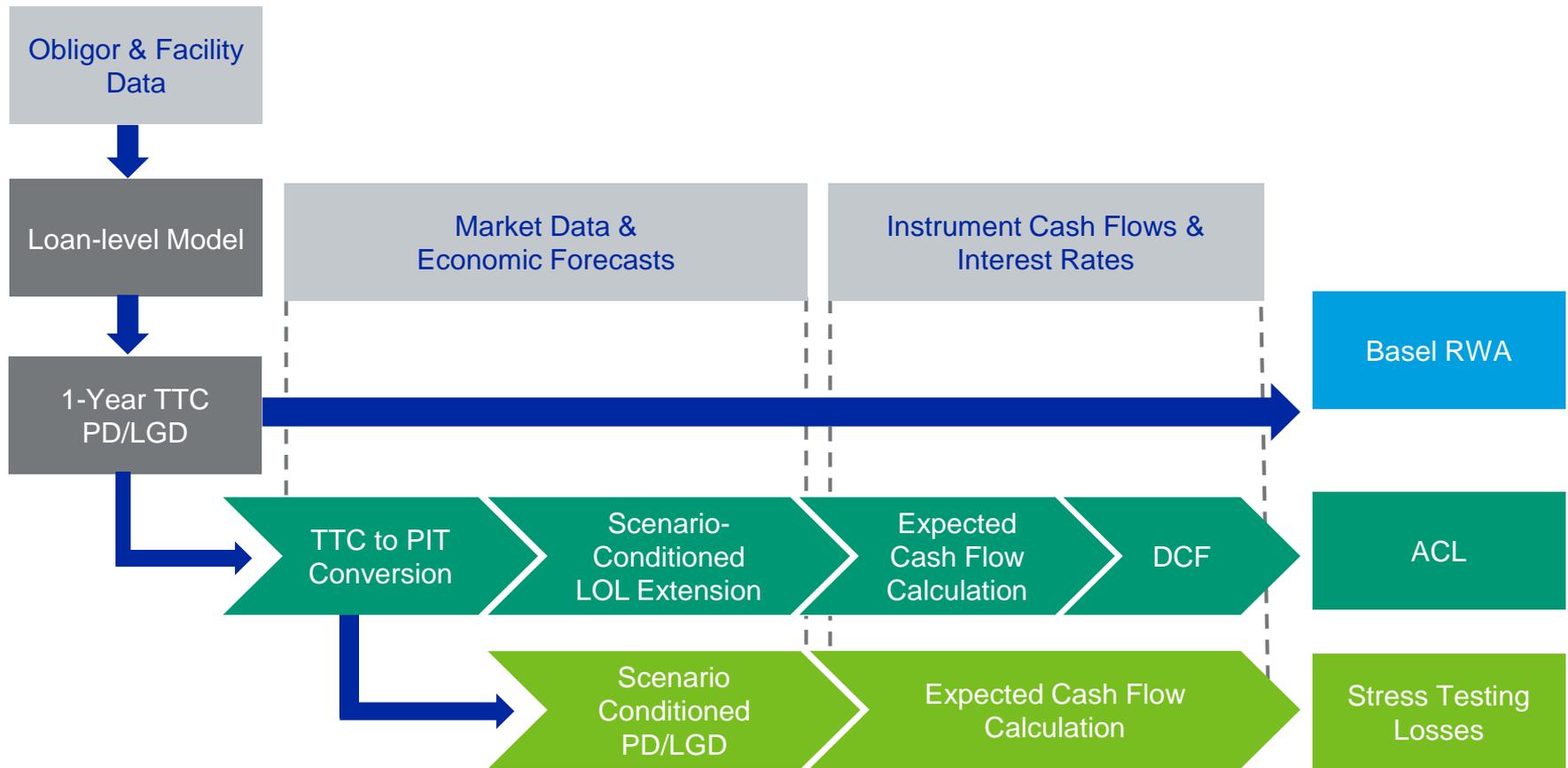
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Towards a Consistent View of Credit Risk

Integrating Risk Ratings, Stress Testing, and CECL



Integrated Loss Modelling



For CECL purposes, loan-level PD/LGD models are consistent with the concept of “pool evaluation”

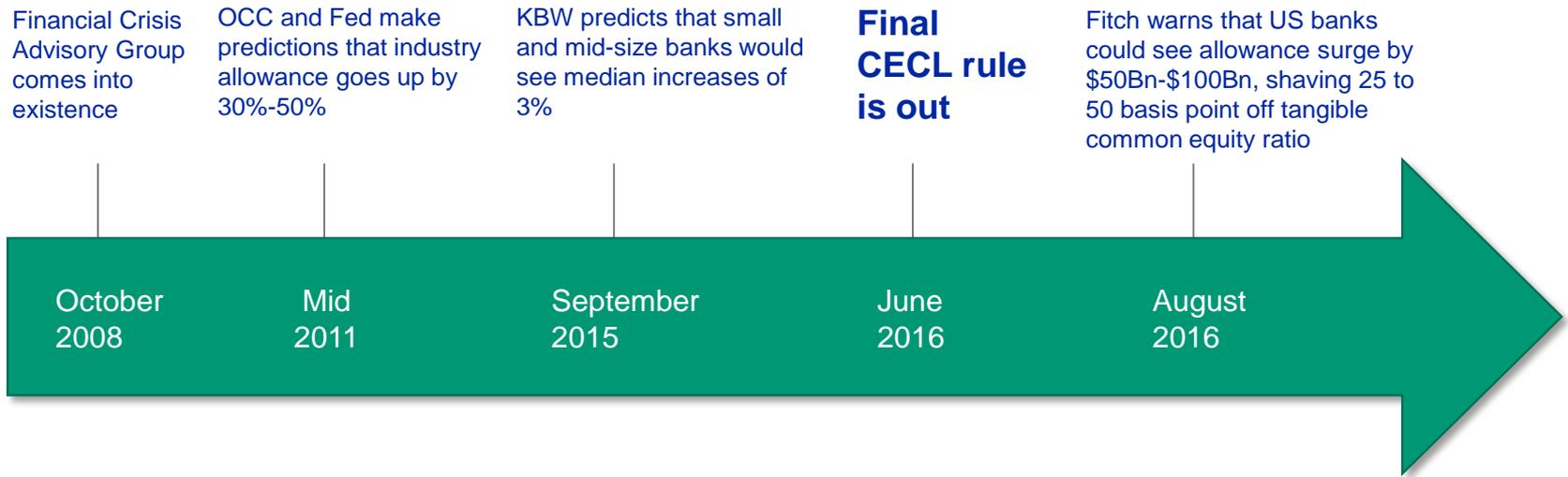
Excerpt from BC70

The Board acknowledges that some measurement methods (such as a loss-rate method, a roll-rate method, a probability-of-default method, and an aging schedule) rely on an extensive population of actual loss data as an input when estimating credit losses. Therefore, these inherently reflect collective evaluation in a manner consistent with the principle because the population of actual loss data is considered on a collective basis, even when the loss rates are applied to individual assets.

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Impact Analysis and CECL Challenges

Impact Today is Not Yet Well Understood



» Other commonly cited potential impacts:

- Product structuring and pricing: only few IFRS 9 banks have indicated change in product offering thus far¹
- Period-to-period volatility in provision: study of ex-ante credit earnings distribution under incurred loss model versus CECL model suggests as much as 1/3 increase in volatility²

1. Moody's Investors Survey: 185 Moody's rated banks that report under IFRS 9
2. Moody's Analytics study of sample portfolio based on industry data

Some General Observations Based on Empirical Analysis

- » Banks are just starting to look at CECL and perform gap analysis, and have not estimated the true impact of CECL on their provisions
- » Based on some empirical analysis done by Moody's¹, CECL would in general raise the level of reserves at most banks, compared to the incurred loss methodology
- » However, the true impact is dependent on:
 - » Portfolio characteristics, such as loan maturity
 - » Economic cycle
 - » Bank's lending practices
 - » Allowance practices
- » CECL's forward-looking requirement generally leads to higher volatility in bank's loss allowances

1-"What Do Half a Million Loans Say About the Impact of CECL on Loan Loss Allowances?", Moody's July 2017

Business Challenges

- » Lack of transparency to investors could raise cost of capital
 - Provide benchmarks
 - Detailed reporting to help facilitate comparisons across banks
 - Rooting ACL in established empirical models could help lower cost of capital
- » Uncertainty inherent in new models/approaches could lead to excessive capital buffers
 - Ground solution in proven, market-accepted approaches to the greatest extent possible
- » Very short time from quarter end to financial reporting date for complex analysis
 - Automation, workflow management, etc.
- » Major changes to the largest estimate on the balance sheet certain to draw significant auditor and examiner scrutiny
 - Thorough documentation, including ample justification of all assumptions and methodologies
- » The long-tailed and economically sensitive nature of the ACL may lead to significant volatility in net income
 - However, FASB states that the incorporation of economic forecasts is intended to limit, not increase, volatility in the ACL

Process Challenges

- » Every new origination triggers an accounting loss event, which could increase documentation requirements (e.g., collateral appraisals)
 - Workflow system; information management
- » Much larger datasets needed to support life-of-loan EL calculations
 - External data augmentation
 - Data warehouse solutions
- » More time needed to generate accurate financials, because of need to calculate EL for all new originations
 - Automation
 - Workflow solutions

Calculation Challenges

- » Long-horizon EL estimates could be much more sensitive to inputs, leading to ALLL volatility
- » Because defaults are correlated, it may be necessary to go back over multiple economic cycles to pick up macroeconomic drivers of loss
 - Augmentation with external data
 - External models
- » Need to go back far in time may call into question relevance of older data
 - Augmentation with external data
- » Challenging to backtest long-horizon estimates because of data scarcity
 - Backtest based on external/out of sample data

Audit/Third-Party Review Challenges

- » Could pull complex systems into audit scope for the first time
 - e.g., ALM if used for cash flow forecasting/prepayments
- » Upsets traditional relationships between reserves and credit metrics, putting auditors under further pressure and creating more uncertainty for investors
 - Provide benchmarks and other forms of context
- » Auditors may require evidence to support length of “reasonable and supportable” forecast horizon

CECL Challenges

Stream

INTERPRETIVE QUESTIONS

- » Methodology elections that require judgments
- » Practical expedients
- » TDRs, PCDs, Off-BS
- » Variable rate loans
- » Revolvers, credit cards

DATA/ SYSTEMS/ PROCESSES

- » Reconciliations
- » Documentation
- » Process flowchart
- » Overrides
- » Manual/single entry
- » Accounting Close

CONTROLS

- » Risks
- » Changes to policy, systems, data, model development
- » Data reliability, accuracy, completeness
- » Assumptions and model validation

DISCLOSURE/ ANAYTICS/ TRANSITION

- » Impact analysis
- » CECL vs DFAST
- » Loss Drivers
- » Adjustments to allowance at period end
- » Disclosure requirements

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Conclusion

More details on all the subjects we touched on today will be presented in the continuing webinars

Leveraging Industry Data for CECL Compliance

Date: Thursday, August 24, 2017

Time: 1:00 PM EDT

Lifetime Expected Credit Loss (ECL) Modelling

Date: Wednesday, September 6, 2017

Time: 1:00 PM EDT

Economic Scenarios for CECL: What's Reasonable and Supportable?

Date: Tuesday, September 19, 2017

Time: 1:00 PM EDT

Empowering Users, Satisfying Auditors

Date: Thursday, October 5, 2017

Time: 1:00 PM EDT

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Ranked Top-5 in 5 out of 11 performance categories: 2011, 2012, 2014, 2015 Expectations (1-, 2-, 3-, 4-Year Horizons)



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Winner Enterprise Stress Testing Overall #7 out of 100



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Best Solvency II Software Best Economic Scenario Generation Software



Recognized as a Top Solution Provider



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