

## Understanding discounted cash flow modeling as an option for CECL

By Brandon Quinones, Risk Management Consultant, Sageworks

One of the main impetuses for changing the prevailing model for estimation of the allowance for loan and lease losses (ALLL) was the FASB’s view that reliance on historic information to determine “incurred-but-not-realized” losses in reserve calculations did not allow institutions to adjust reserve levels given a reasonable and supportable expectation of future events. Thus, a new standard requiring institutions to “... estimate expected credit losses over the contractual term of the financial asset(s)...” and “...consider available information relevant to assessing the collectability of cash flows. This information may include internal information, external information, or a combination of both relating to past events, current conditions, and reasonable and supportable forecasts.”<sup>1</sup>

### Contractual v. Expected Cash Flows

When estimating losses using a discounted cash flow (DCF) approach, expected cash flow models are appropriate for reserve calculation under the new standard. A few material differences between the two calculations are modeling factors such as prepayment, default estimates, loss estimates and recovery activities that otherwise would not be used in a contractual cash flow calculation.

### Approach

To calculate and apply these tendencies, the following inputs are critical to the calculation of discounted cash flow:

Loan Level Calculation Inputs // Stored Data		Portfolio Level Calculation Inputs // Assumptions	
Input	Definition/Purpose	Input	Definition/Purpose
<b>Payment Type</b>	Required to determine whether to apply a statistical curtailment tendency, a P&I model or a custom cash flow for baseline (contract) cash flow expectations.	<b>Curtailment Rate</b>	Periodic tendency of an extended principal dollar to return to the institution. This is the dominant behavior for non-amortizing loans.
<b>Maturity Date</b>	Used to determine the number of periods against which to generate cashflows / balloon expectations.	<b>Funding Rate</b>	Periodic tendency of an undrawn dollar to be drawn. Only applicable to loans with available credit. Calculated separately from curtailment, not blended.
<b>Payment Amount</b>	The true principal and interest payment for amortizing loans exclusive of late fees, escrow, etc.	<b>Prepayment Rate (CPR/ SMM)</b>	Periodic tendency to receive unexpected principal payments. Only applicable to amortizing loans.
<b>Interest Rate</b>	Either effective yield or coupon rate.	<b>PD (Probability of Default)</b>	Periodic tendency of a loan or dollar to enter default state.
<b>Payment Frequency</b>	The frequency with which a payment will be made. (e.g., monthly, annually)	<b>LGD (Loss Given Default)</b>	Static loss on a loan, conditional to default event.
<b>Amortization</b>	The “day count” of a loan. (e.g., Actual 365, 30/360, Actual 360)	<b>Recovery Delay</b>	Static time between default event and resolution (recovery or loss).

<sup>1</sup> ASU 326-20-30-6

Of all the portfolio assumptions noted in the table, perhaps the most important to calculate are the Probability of Default (PD) and Loss Given Default (LGD).

PD and LGD are parameters that can be leveraged by institutions in a standalone measurement. Institutions currently using a PD and LGD approach for current GAAP may make an effort to calculate a lifetime PD and a symmetrical LGD to determine a rate for loss in an attempt to accomplish life-of-loan requirements as part of the new standard.

## BENEFITS

### Long-Term Assets

Calculating and understanding the average life and/or prepayment rate of a loan/loan type (e.g., CRE, Mortgages, C&I) is mandatory when calculating the expected credit losses.

An institution calculating its life-of-loan loss experience utilizing methodologies such as Vintage Analysis, Migration, PD and LGD, and/or Static Pool analysis will require look-back periods sufficient to cover the expected life of the pool. For example, if a loan pool has an average life of four years, an institution would need four years of data to conduct a single four-year observation of losses, and such a data set would only be inclusive of loans that were on the balance sheet four years prior.

A DCF approach can employ recent, shorter-term observations for deployment in a forward-looking amortization schedule. DCF is, and will be, a preferred methodology for calculating the reserve of longer-lived assets.

### Readily Available Industry/Peer Data

In instances where loan pools lack loan-counts to be statistically relevant, haven't experienced a material amount of defaults/losses during periods where data is available and/or have new portfolios that are more analogous to industry/peer experience, a DCF best accommodates alternative measurements while maintaining institution-specific risk.

In using DCF, financial institutions may deploy industry-level PD, LGD and CPR (Conditional Prepayment Rate) toward their own loan structures for a reasonable and possibly more relevant expectation of life-of-loan loss.

### Forecasting

The CECL standard frequently references concepts related to making adjustments based on reasonable and supportable forecasts<sup>2</sup>, concepts that are most logically addressed by using a DCF methodology. In projecting expected cash flows, each period within a forward-looking amortization schedule can/will vary slightly based on future expectations of external/economic data.

### CHALLENGES

By its very nature, executing an expected cash flow schedule for each loan every month/quarter may not be practical in a spreadsheet environment. On the other hand, institutions utilizing a third-party provider may run into challenges recording the loan data required to build an accurate amortization schedule.

The process starts and ends with developing policies and procedures around the ongoing maintenance of loan-level data. Every institution should begin to define rules for storage and/or maintenance of data. By taking steps now, financial institutions will find themselves in a position to calculate a reasonable and supportable reserve.

*Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Financial Managers Society.*

### About the Author

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<sup>2</sup> ASU 326-20-30-7



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