

Outlook

## Point of View: CECL

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### Impacts of CECL: Empirical Assessments and Implications

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*We are pleased to present Accenture's point of view on the impacts of Current Expected Credit Losses (CECL), along with the empirical assessments and implications of it on Stress Tests. Thought pieces that provide perspective and discuss potential implications of FASB's current expected credit loss (CECL) model will continue to be published at: <http://www.accenture.com/Outlook>*

The Financial Accounting Standards Board (FASB) issued a new accounting model- Current Expected Credit Losses (CECL) for recognition and measurement of credit losses for loans and debt securities in June 2016, with a view to replace the existing 'incurred loss' model. CECL will be effective from 2020 for financial statements of SEC registrants, 2021 for non-SEC registrants and 2022 for all other entities, with early application permitted from 2019. For SEC filers, the standard will be effective for fiscal years beginning December 15, 2019, including interim periods within those financial years. All other entities will have an additional year

The new measurement approach is based on expected losses, commonly referred to as the current expected credit loss model (CECL), and applies to financial assets measured at amortized cost, including loans, held-to-maturity debt securities, net investment in leases, and reinsurance and trade receivables, as well as certain off-balance sheet credit exposures, such as loan commitments. The standard also changes the impairment model for available-for-sale debt securities, credit exposures, such as loan commitments. The standard also changes the impairment model for available-for-sale debt securities. In CECL approach, departing from the current backward-looking allowance approach, credit losses will be measured on a forward-looking basis. In such estimates, forward-looking information such as Reasonable & Supportable (R&S) forecasts, long term charge-off rates, pre-payment rates and loan pay off rates are involved. At acquisition and each reporting date, entities need to

recognize an allowance for lifetime expected credit losses. The amount recognized is based on the current estimate of contractual cash flows not expected to be collected which is tied to the entities default probability and loan's loss rate in the event of default.

#### Accenture's View:

Although, much discussion has occurred in the banking industry with regards to the potential impacts of CECL, the primary analytical focus has been on how a bank should develop the loss forecasting models and modeling framework to calculate the life time expected credit losses. While developing a modeling framework that will be GAAP compliant is critical to implementing CECL, understanding how CECL reserves will behave is just as equally important. Despite the importance, impact analyses have been limited, and only a few have articulated how the total bank CECL reserves might have behaved through the last downturn. For example

Breeden of Deep Future Analytics used a "large dataset from Fannie Mae and Freddie Mac to test a range of models and options," all allowable by the CECL guidelines, and concluded that for 30-year fixed rate conforming - mortgages, the lifetime loss rates can "vary by a factor of 2" depending on which loss forecasting model methodology a bank chooses.

The above analyses focused only on segments of banks' loan portfolios. Aggregate bank-level CECL reserves can also be back-tested using a few key assumptions. The assumptions, which are allowable in the accounting standard, can be changed easily, to understand the CECL reserve sensitivity to the key assumptions. Unlike either of the above studies, the following study presents the results of a holistic historical analysis at both aggregated industry level and sub-portfolio level i.e. Mortgage, Commercial & Industrial.

Understanding CECL behavior upon implementation is as critical, as it is to determine expected charge off rates

Most practitioners are concerned about the loss forecasting methodologies and the impact of CECL in provision volatility & procyclicality in a downturn

We have analyzed the CECL behavior based on critical parameters:

1. Reasonable & Supportable horizon (R&S)
2. Mean Reversion
3. Long term net charge off rate(NCO)
4. Expected life of loan

Impact analyses to try and fully understand how CECL would have actually performed over the past decade have been limited.



Definition	Period for which an entity is able to forecast charge off rate on asset (in future)	Time taken to revert to unadjusted historical charge off rate for future periods beyond the reasonable and supportable forecasts.	Proportional amount that an entity does not have any chance to recover	Life of the loan / portfolio taking prepayment & amortization into account
Calculation Methodology	Used long-term historical credit charge off rate for specific quarter within the R&S horizon	The difference between the charge off rate at the end of R&S horizon and the long-term charge off rate is adjusted equally over the mean reversion period	Used historical credit loss information (that includes an economic cycle, reflecting a downturn) to arrive at the long term charge	Used weighted average life of a loan / portfolio (average of C&I and mortgage)
Values	<b>9 quarters</b> – Assumed based on forecast horizon used for CCAR / DFAST stress testing scenarios	<b>4 quarters</b> – Assumed based on forecast horizon used for CCAR / DFAST stress testing scenarios	<b>1.00%</b> - Calculated based on historical (2002, Q1 – 2017, Q2) average NCO rate	<b>6.5 years</b> – Considered average life of C&I (~3 years) and mortgage (~9 years) portfolio

## Data and Methodology:

The approach assumes that over the period of Q1'2002 to Q2'2017, the CECL methodology would be applied with perfect hindsight and is applied at the aggregated industry level and sub-portfolio level i.e. Mortgage, Commercial & Industrial.

Publicly available data sourced from FDIC were used to perform the analysis. Specifically, both at the individual bank and peer group level, the following quarterly data were compiled:

(a) loan balances

(b) net charge-off ("NCO") amounts and (c) loan loss reserve balances

The annualized net charge off rate for each quarter was readily available in FDIC website and was accordingly utilized for our calculations. The quarterly charge off rates were calculated by utilizing the quarterly net charge off balances and average loan balances.

Additionally, from the NCO rate data, a portfolio level long-term historical NCO rate was derived for the entire period that is used as a starting point for the portfolio "long-term loss rate. The Loan outstanding was amortized using straight line method for the expected life. Amortized loan balances for each quarter

was multiplied with respective quarter charge off rates for 9 quarters (R&S period). Post which, for 4 quarters (MR period) the charge off rates used were adjusted to revert to long term charge off rates. Post 13 quarters, long term NCO rates were used. 1.00% is the long-term charge off rate for the industry and this figure will vary according to the portfolio used in the analysis.

A straight-line balance reduction was assumed as a simplifying assumption to calculate the expected life of the loan portfolio.

Data Source		Data Points
Data Source	Federal Deposit Insurance Corporation	<ul style="list-style-type: none"> <li>Gross total loans and leases</li> <li>Allowance for Loan and Lease Losses (ALLL)*</li> <li>Net charge-off ("NCO") amounts and rates</li> </ul> (*only available at the industry level)
Level	Aggregated industry level and sub-portfolio level (i.e. Mortgage, Commercial	
Time Period	2002 Q1 – Q2 2017	
Frequency	Quarterly	

Amortization of loan	Loan outstanding is amortized using straight line method for the expected life
Charge off rates	Quarterly charge-off rates are applied over the expected life for outstanding loans Long term charge-off rate is taken at 1.00% for the full period (2002-17)
CECL Computation	CECL is computed at portfolio level with perfect hindsight to compute CECL Reserves
Final Metrics	Area under the Reserves curve, Trough to peak, Average Reserves, Average provision, Standard deviation Provisions, Standard deviation

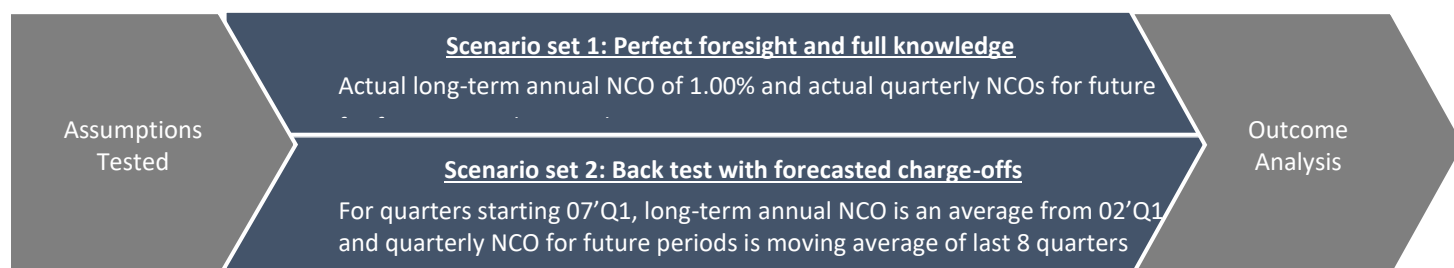
The Quarterly charge off rates were applied over the expected life of long term loan

CECL was computed at portfolio level with perfect hindsight to compute CECL Reserves

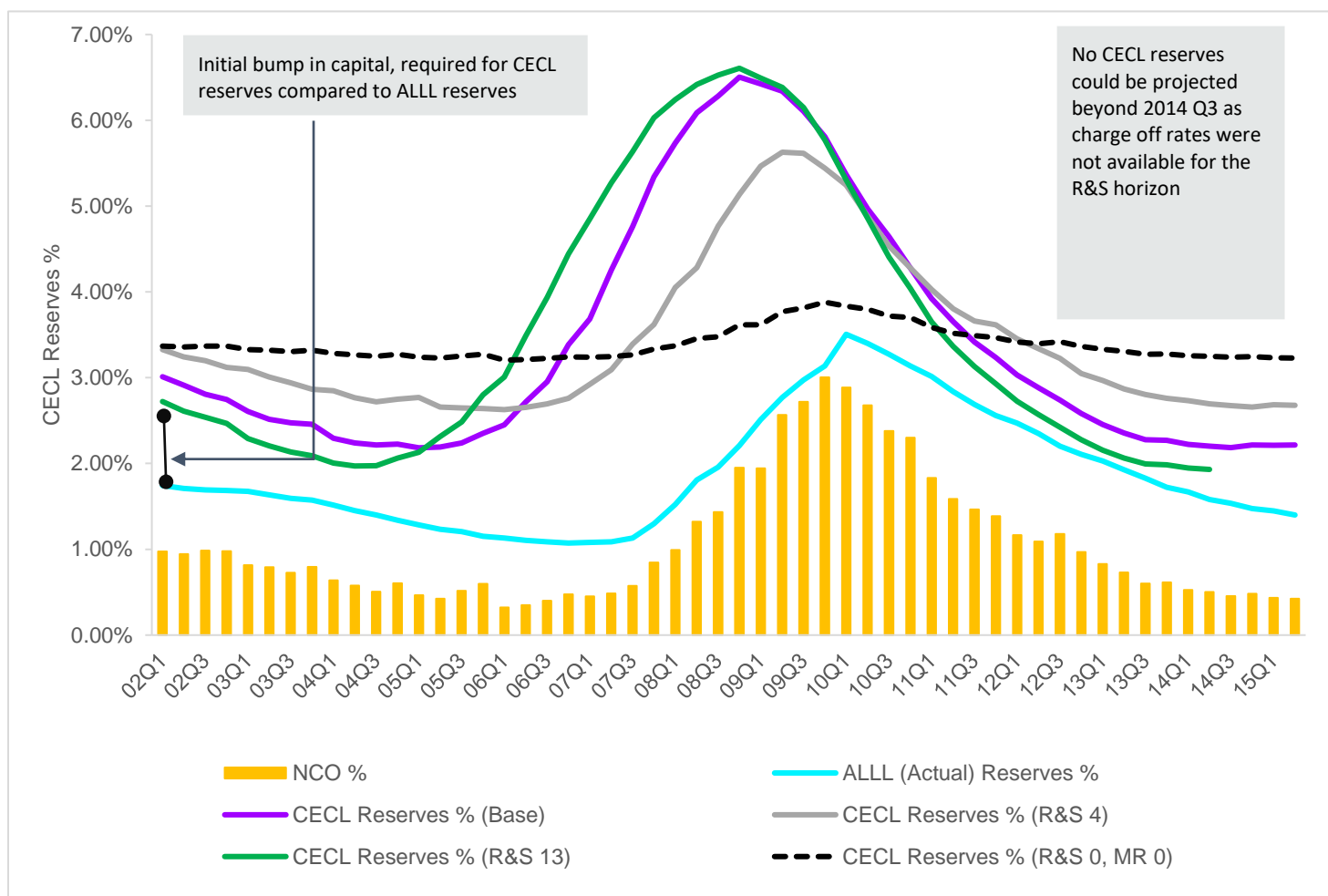
Multiple metrics were used for the impact analysis. (1) Averages reserves, (2) Change in reserve levels, measured at each period in time and also the delta between the lowest and the highest point. (3) Total Area under the Reserve curve aimed to measure the aggregate reserves in the system for a period of time

## Outcome Analysis:

The next few sections, discusses the various types of analysis performed, and the inferences drawn, along with graphical of each of the sensitivity cases considered



## Sensitivity analysis for R&S horizon:



## Methodology:

Sensitivity Analysis – Reasonable and Supportable Horizon (R&S)

*This analysis is performed to understand variation in CECL reserves with changing Reasonable and Supportable Time Horizon, and with changing delta between the period's charge off rate and long-term loss rate*

Here, CECL Reserves are forecasted for different R&S time horizon to measure CECL sensitivity. Note that as one transitions from a shorter reasonable and supportable time horizon to a longer reasonable and supportable (R&S) time horizon, the analysis probably more closely approximates the true "expected life of loan losses" that resulted from the loan portfolio cohort at each reporting period.

## Assumptions:

Initial NCO Rates for different time periods are given in the table

It is to be noted that during (07-09), NCO% is higher than long term NCO%. The Expected life of loan losses is constant at 6.5 Years (26 Quarters).

	'02-'06	'07-'09	'09-'16	Overall
NCO %	0.64%	1.52%	1.01%	1.00%
Long-term NCO %	1.00%	1.00%	1.00%	1.00%
Avg. CECL Reserves %	2.55%	5.61%	3.06%	3.44%

To perform sensitivity analysis, we consider a base case with R&S time horizon as 9 Quarters. Nine quarters is often cited in the industry as a potential forecast horizon because that is the length of the time used for CCAR / DFAST scenarios. In addition to that, we have two test cases –

- 1) R&S Time Horizon – 4 Quarters
  - 2) R&S Time Horizon – 13 Quarters
- Rest assumptions remains the same.

Graph is plotted to understand variations in CECL Reserves

## Inferences:

The following table summarizes the results

	Actual ALLL	Base (9 Qtr.)	R&S (13 Qtr.)	R&S (4 Qtr.)
Area Under the Curve (overall period)	1.00x	1.82x	1.75x	1.82x
Trough vs. Peak	2.43%	4.32%	4.68%	3.00%

Actual reserves (in blue) follows the NCOs with a multiple of 1.5X over the period analyzed. During the financial crisis period historical actual reserves rise from their lowest point in 2007 to the highest point in 2010 by 2.43%. However, during the worst periods of the recession, actual reserve levels slowly adjust to the increasing charge off levels. This has been the main criticism of the incurred loss period approach, where the reserve allocation is more reactionary and backward looking. Main premise of CECL is that it is forward-looking and thus should avoid any delays in building up the reserves in a recession.

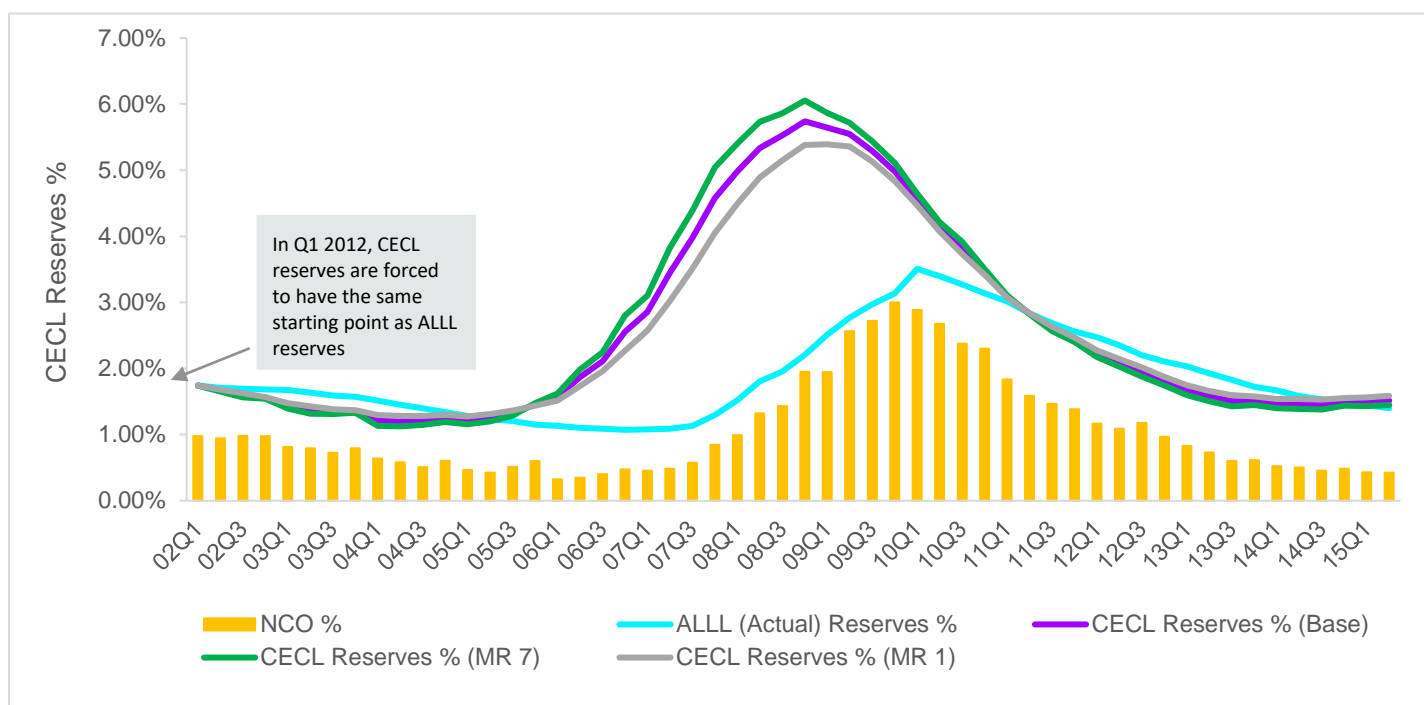
In our historical analysis, CECL reserves (base case in purple) are much higher in levels than the actual reserves historically. And the simulated CECL reserves start building up earlier than the actual reserve levels historically under the 9 quarter R&S assumption as predicted.

Average CECL reserves during 07'-09' period is 5.61% as compared to 2.55% during 02'-06'. This is due to higher NCO%. We can infer that CECL reserves seem sensitive to R&S horizon at specific periods when NCO rate for the period ('07-'09) is higher than the long-term average NCO.

An increase in R&S horizon (from Qtr. 9 to 13) with a perfect foresight assumption, requires higher CECL reserves to be built prior to the recession.

Another measure we introduce is the area under the Reserve curve for an aggregate of 15 years in the study. As presented in table above, the aggregate level of reserves in the system is not much sensitive to the R&S period. Overall, CECL reserves would be higher than the current methodology requires. For example, in our case with the assumptions outlined above the impact would be 1.8X the historical reserves in the system. As we vary the R&S assumption, shape of the CECL reserve curve is changing, 13 quarter assumption is requiring reserves to be built earlier, but the area under the reserve curve is not changing much. R&S parameter seems to drive the timing of the reserve built, which is a very important issue particularly going into a recession, from a soundness and solvency point of view; but as we have shown in our case study, earlier excess built would compensate the post-crisis years and the sum of all the reserves would not change as much.

## Sensitivity Analysis for Mean Reversion Time (Time taken to revert to long term charge-off rates)



### Methodology:

#### Sensitivity Analysis – Mean Reversion Time

*This analysis is performed to understand variation in CECL reserves with Mean Reversion Time (MRT)*

Here, CECL Reserves are forecasted for different Mean Reversion Time (MRT) to measure the CECL sensitivity.

As per Industry standards, nine quarters have been fixed for potential forecast horizon and a base case of 4 quarters for MRT has been considered to approximate the “true” historical life of loan losses in the portfolio. Two other scenarios have been plotted to analyze the sensitivity of CECL reserves to changing Mean reversion time

### Assumptions:

Initial NCO Rates for different time periods are as follows

	'02-'06	'07-'09	'09-'16	Overall
NCO %	0.64%	1.52%	1.01%	1.00%
Long-term NCO %	1.00%	1.00%	1.00%	1.00%

The Expected life of loan losses is constant at 6.5 Years (26 Quarters).

Here, CECL Reserves are forecasted for different MRT to measure the CECL sensitivity. Two scenarios considered for analysis are:

1) MRT as 1 Quarter 2) MRT as 7 Quarters

Rest of the assumptions remains the same. Graph is plotted to understand variations in CECL Reserves

### Inferences

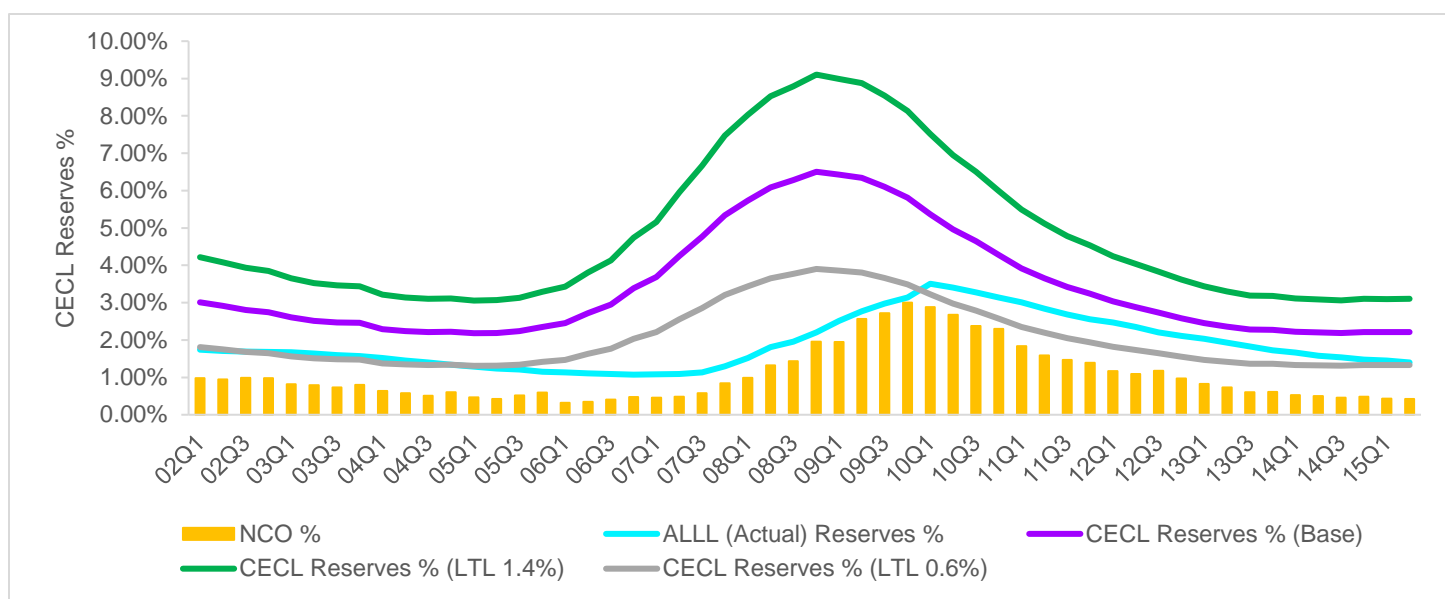
The following table summarizes the results

	Actual ALLL	Base (4 Qtr.)	MR (7 Qtr.)	MR (1 Qtr.)
Area Under the Curve	1.00x	1.82x	1.83x	1.82x
Trough vs. Peak	2.43%	4.32%	4.70%	3.91%

Actual reserves (in blue) follows the NCOs with a multiple of 1.5X over the period analyzed. With comparing the troughs and peaks, CECL reserves peaks at Q4,2008 and for all the 3 scenarios the volatility hovers between 3.9% to 4.7%. However for all the 3 scenarios, the area under the curve is not sensitive to mean reversion time. The aggregate level of reserves in the system is same in all 3 cases with 1.8X

75% change in mean reversion time (from end of R&S horizon) results in ~ 0.3% change (for overall period Q1' 2002 – Q2' 2015) in CECL reserves. The impact of the 4-quarter reversion period is minor as loan balances have reduced modestly over the first 9 to 13 quarters and therefore the loss rates after that period are applied to significantly smaller loan balances.

## Sensitivity Analysis for Long Term net charge off (NCO) rates



### Methodology

#### Sensitivity Analysis – Long term Net Charge off Rate (NCO)

*This analysis is performed to understand variation in CECL reserves with varying long-term NCO. The net charge off rate is varied by 40 basis points and CECL reserves are calculated*

Here, CECL Reserves are forecasted for different long-term Net charge off to measure the CECL sensitivity.

As per Industry standards, nine quarters have been fixed for potential forecast horizon with a base case scenario of 1%. Long-term net charge off, which is then modified to 0.6% and 1.4% for the comparative analysis

### Assumptions

Initial NCO Rates for different time periods are as follows

	'02-'06	'07-'09	'09-'16	Overall
NCO %	0.64%	1.52%	1.01%	1.00%
Long-term NCO %	1.00%	1.00%	1.00%	1.00%
CECL Reserves / ALLL Reserves	1.00x	1.70x	0.72x	1.04x

The Expected life of loan losses is constant at 6.5 Years (26 Quarters), while the R&S and Mean Reversion time is fixed to 9 quarters and 4 quarters respectively.

Rest of the assumptions remains the same. Graph is plotted to understand variations in CECL Reserves

### Inferences

The following table summarizes the results of the analysis

	Actual ALLL	Base (1.0%)	LTL (1.4%)	LTL (0.6%)
Area Under the Curve	1.00x	1.82x	2.55x	1.10x
Trough vs. Peak	2.43%	4.32%	6.05%	2.59%

At the end of the R&S period, banks should either revert to the average loss estimates directly or use the average of macroeconomic inputs into their CECL models. The example, we have illustrated here is closer to the first option as it is used to highlight the importance of historical experience in making CECL projections.

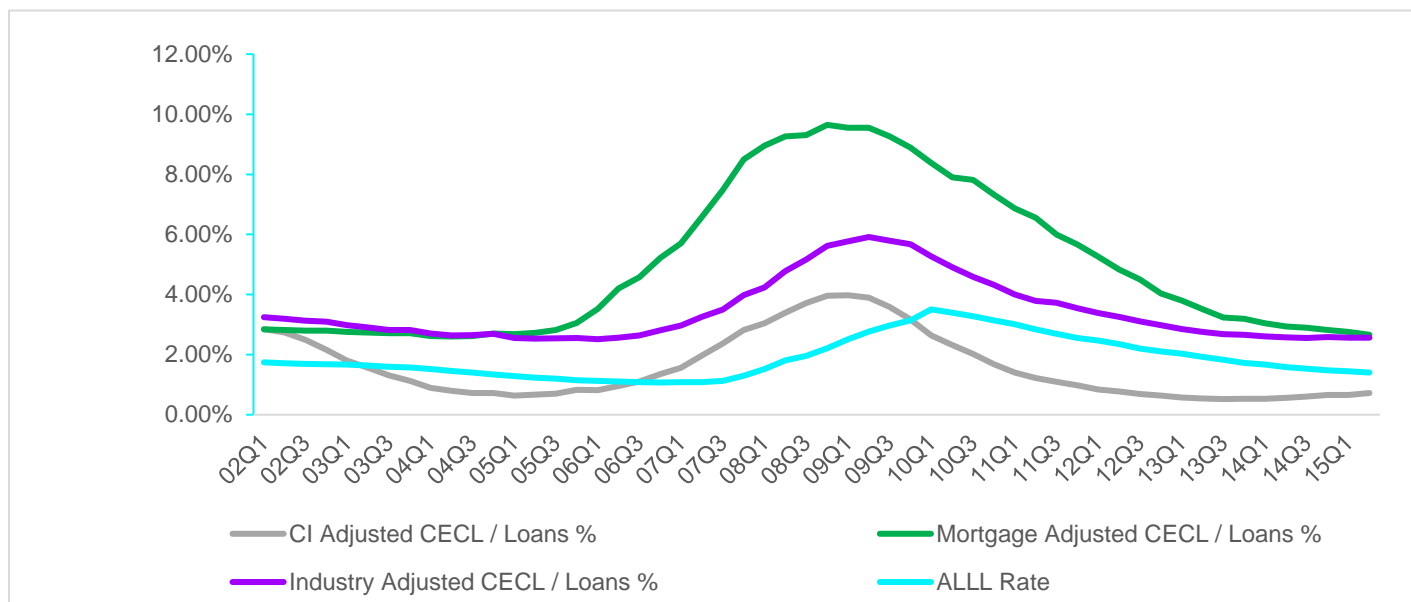
The actual experience is long-term NCO rate of 1.0%. We artificially inflated and deflated these figures by about 40% for testing purposes. We find that CECL reserves will be linearly

This applies for both Area under the Reserve curve and the delta between trough and peak. When long term net charge off is modified to 1.4% (40 % over the base scenario), the aggregate CECL reserves, change in level and average CECL reserves also increase by 40% respectively

This particularly important as long-term charge off estimates should reflect the bank's best estimate. While the historical charge of experience is fixed, how to use the historical portfolio considering the evolving nature of the business, underwriting standards and variations in the portfolio composition makes it ever more challenging when used for future projections.



## Sensitivity Analysis for Expected Loan Life: CECL Reserves for Mortgage Vs. C&I Loans



### Methodology:

#### Sensitivity Analysis – Expected life of portfolio

*This analysis is performed to understand variation in CECL reserves with different expected portfolio life. We project CECL for three types of loan portfolios – Mortgage CECL, Commercial and Industrial CECL and Industry CECL. These portfolios have varying expected life*

Expected life for the three scenarios considered are:

- 1) Mortgage Portfolio – EL: 9 Years
- 2) Commercial & Industrial – EL: 3 Years
- 3) Industry – EL: 6.5 Years

The exercise allows us to measure the sensitivity of CECL reserves given the varying expected life of loan portfolios

### Assumptions:

Industry-level NCO rates are still 1.00%. The mortgage rates historically are at .54% and C&I is at .84%. To make our analysis more tractable, we would like to change one variable at a time. Since we are investigating the impact of Expected Life on

CECL, we made an adjustment to Mortgage and C&I NCO rates lifting both to the overall average of 1.00%.

NCO Rates for different time periods are as follows

	Industry	Mortgage	C&I
NCO %	1.00 %	0.54 %	0.84 %
Expected Life	6.5 Yrs	9 Yrs	3 Yrs

The R&S and Mean Reversion time is fixed to 9 quarters and 4 quarters respectively. The Expected life of loan losses is constant at 6.5 Years (26 Quarters).

Rest of the assumptions remains the same.

Graph is plotted to understand variations in CECL Reserves

### Inferences:

The following table summarizes the results

	Actual ALLL*	Industry CECL	C&I CECL	Mortgage CECL
Area Under the Curve	1.00x	1.83x	0.84x	2.67x
Trough vs. Peak	2.43%	3.40%	3.46%	7.04%

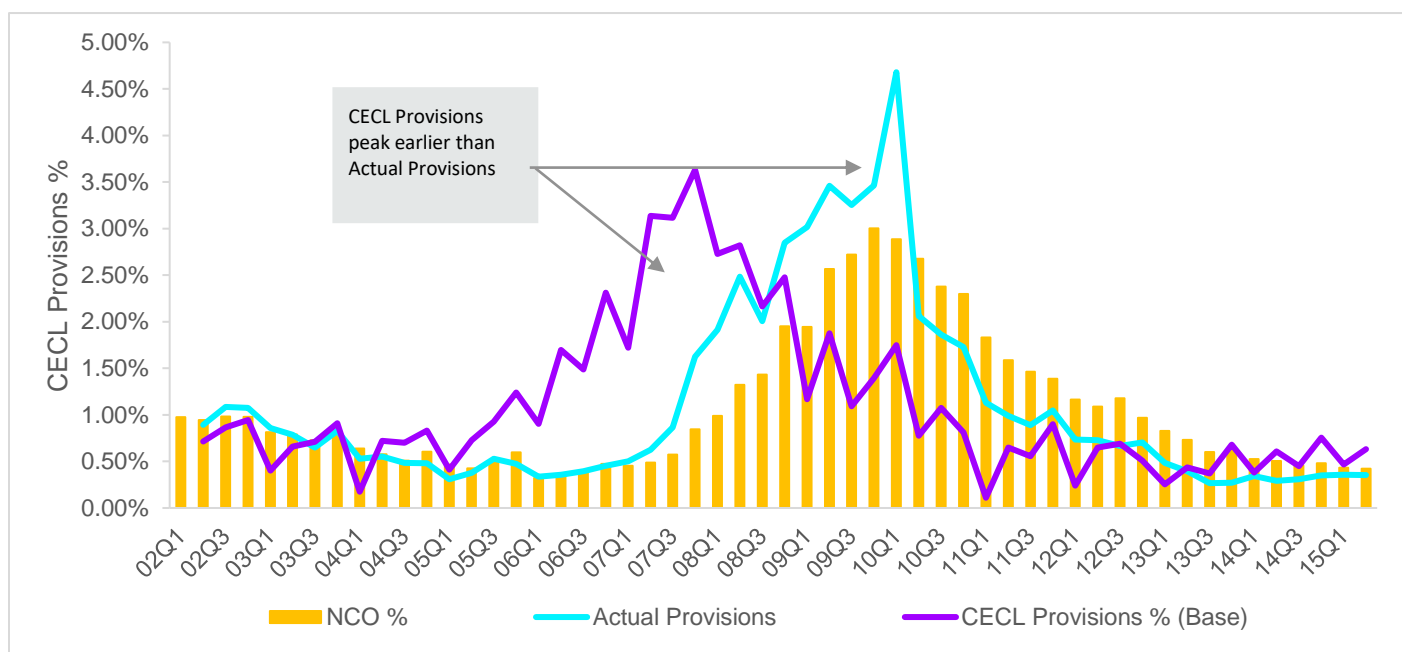
As observed, products with longer maturities require more reserves compared to those with shorter maturities under the CECL methodology

CECL reserves are higher for mortgages compared to C&I loans on an average suggesting that the reserve requirements are more for products with longer maturities. Reserve requirements for mortgages are almost 3X as compared to C&I loans

With the increasing maturity, the difference between trough and peak also increases, denoting a direct correlation between levels needed and expected life of loan portfolio.



## Comparison of CECL Provisions Vs. Actual Provisions



### Methodology:

Comparative analysis between CECL Provisions and Actual Provisions

*This analysis serves as a baseline against which the CECL provisions are compared with the Actual provisions since Q2, 2002.*

CECL provisions are calculated using the change in CECL reserves (QoQ) and the NCO for each quarter. The numbers are compared with actual provision from Q1 2002 to Q2 2015.

The analysis performed highlights the advantages a bank would have by adopting CECL provisions (if one ignores the higher level of reserves, but narrowly focuses on the timing of reserve built up and provisions) versus actual provisions, during recessionary periods, and thus enhance decisioning of reserve calculation during times of stress

### Assumptions:

Initial NCO Rates for different time periods are as follows

	'02-'06	'07-'09	'09-'16	Overall
NCO %	0.64%	1.52%	1.01%	1.00%
Long-term NCO %	1.00%	1.00%	1.00%	1.00%

The R&S and Mean Reversion time is fixed to 9 quarters and 4 quarters respectively, while the Expected life of loan losses is constant at 6.5 Years (26 Quarters).

As per industry standards, the long-term Net charge off is fixed to 1%

### Inferences:

The following table summarizes the results

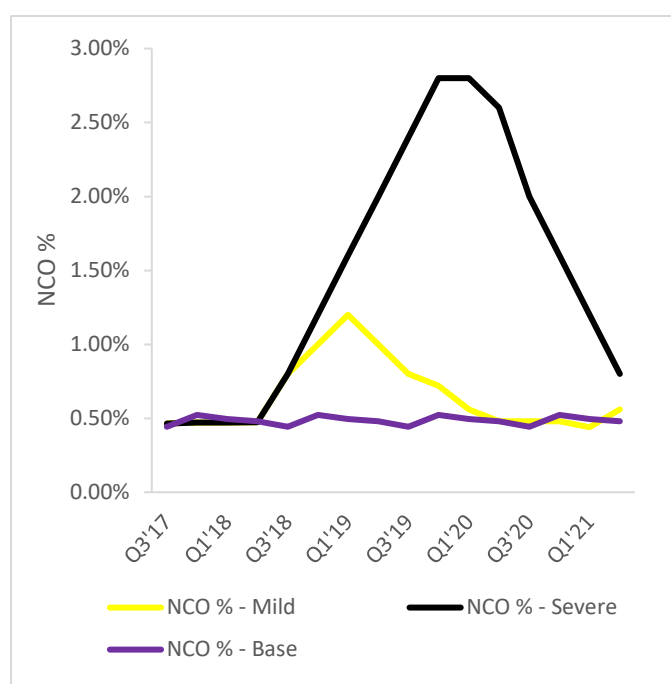
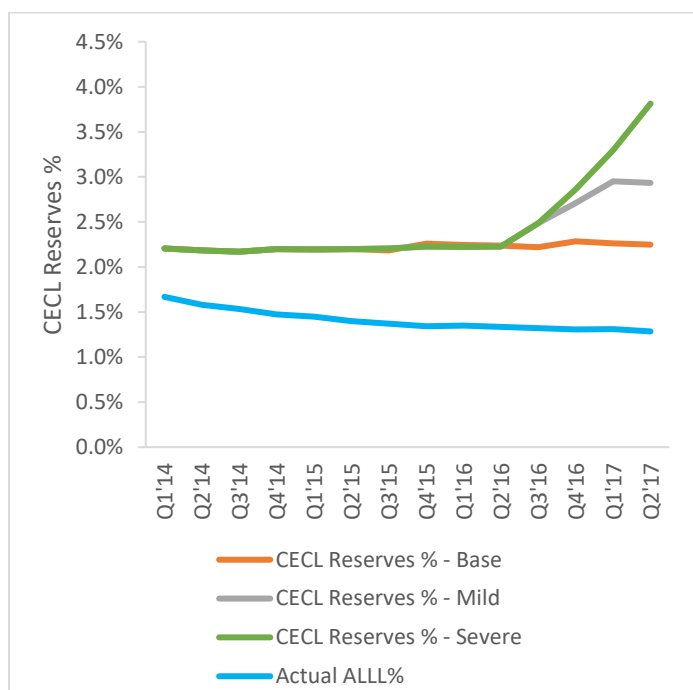
	Actual Provisions	CECL Provisions
Volatility	1.02%	0.84%

As deduced, CECL provisions are less volatile than the actual provisions (0.84% vs 1.02%)

CECL provisions peaks earlier than actual provision: If the Banks had the foresight to see the looming recession and had the accurate credit loss models in place, the forward-looking nature of CECL would have allowed them to create a buffer going into the downturn had CECL been implemented in 2002.

CECL provisions are markedly higher while going into recession, while observably lower than actual provisions for other loss periods due the assumptions employed here. Knowing when the recession ends and the recovery takes hold is part of the perfect foresight assumption we employed in this part of the study. We will relax this assumption later.

## Mild and Severe Recession Forecast Post 2017



### Methodology:

CECL variation for Base, Mild and Severe recessions post 2017

*This analysis is performed to understand variation in CECL reserves for three different recessionary intensities – Base Case, Mild and Severe Recession*

Having done a variety of back testing analysis, in this section, we turn to forward-looking projections to test the sensitivity of CECL reserves. CECL reserves were projected for a baseline, mild and severe recession scenario, post Q2' 2017.

Mild recession and severe recession scenarios were simulated using averages of net charge off rates. While not exact, mild scenario is similar to FRB's 'Adverse' and by the same token severe is close to 'Severely Adverse' scenarios.

For the severe recession scenario, sensitivity was analyzed with respect to the reasonable and supportable horizon

### Assumptions:

Initial NCO Rates for different time periods are as follows

	'02-'06	'07-'09	'09-'16	Overall
NCO %	0.64%	1.52%	1.01%	1.00%
Long-term NCO %	1.00%	1.00%	1.00%	1.00%

The R&S and Mean Reversion time is fixed to 9 quarters and 4 quarters respectively, while the expected life of loan losses is constant at 6.5 Years (26 Quarters).

Rest of the assumptions remains the same.

Graph is plotted to understand variations in CECL Reserves

### Inferences:

The following table summarizes the results

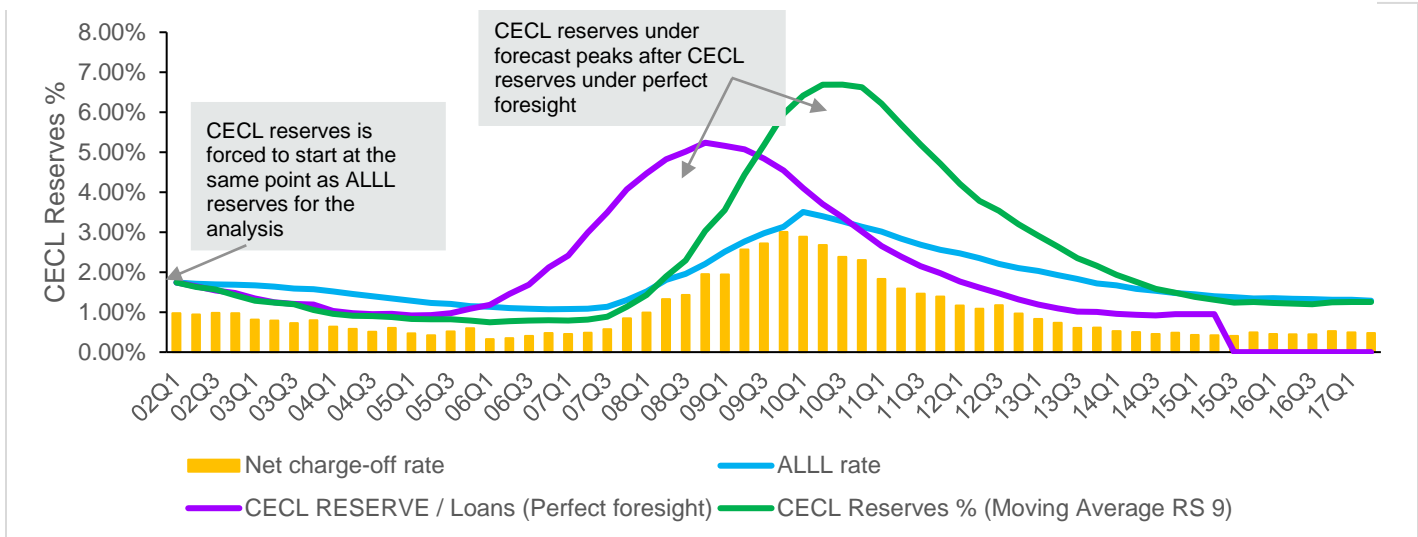
	Base Case	Mild Recession	Severe Recession
Avg. NCO Q3'17 – Q3'19	0.5%	0.7%	1.1%
Area Under the Curve	0.31	0.33	0.34
CECL / Actual (Q2'17)	1.7X	2.3X	3.0X

CECL reserves are highly sensitive to future net charge off rate projections:

A 0.4%-point increase in avg. NCO from mild to severe recession results in 30% bump in CECL reserves,

A 0.2%-point reduction in average NCO from Mild to Base recession results in 25% drop in CECL reserves

## 2006 Back-test: CECL Reserves under perfect foresight Vs. Moving avg. of Net Charge Off & Long-Term Loss Rate



### Methodology:

CECL Reserves under perfect foresight Vs. Moving avg. of Net Charge Off & Long-Term Loss Rate

*This analysis is performed to show the importance of strong NCO forecasting models and methodologies, to establish the impact of inaccuracies on calculation of desired CECL results*

We further iterate on the less than perfect foresight assumption. In the previous section, we illustrated inaccurate forecasts coming from either from credit loss models or macroeconomic projections. In a more realistic rendition of the period before the crisis, we should also consider that historical loss rates were much lower and our future projections of long term charge off rates in 2006 would have been informed by the history we had till that moment. CECL reserves under inaccurate forecast were calculated based on

- (1) Credit models reflect the rolling 8 quarters averages as NCO forecasts for quarters starting 2007Q1
- (2) Our long-run average NCO is updated as latest information becomes available, but in 2006 we couldn't foresee the financial crisis

### Assumptions:

Initial NCO Rates for different time periods are as follows

	'02-'06	'07-'09	'09-'16	Overall
NCO %	0.64%	Incorporates new quarterly loss rate beyond 06'Q4		
Long-term NCO %	1.00%	1.00%	1.00%	1.00%

The R&S and Mean Reversion time is fixed to 9 quarters and 4 quarters respectively, while the expected life of loan losses is constant at 6.5 Years (26 Quarters).

The long-term loss rate is 0.64 till Q4 2006, post which new quarterly loss rate are implemented

Rest of the assumptions remains the same. Graph is plotted to understand variations in CECL Reserves

### Inferences:

The following table summarizes the results

	Actual ALL	Perfect Foresight	Forecast RS 9
Area Under the Curve	1.00x	1.83x	1.77x
Trough to Peak	2.43%	4.32%	5.94%
Standard Dev	0.69%	0.24%	0.31%

Using a slow-adjusting backward-looking methodology, we see a major difference in the timing and level of CECL reserves. CECL peak (7.51%) is at a higher point and is at a later period as compared to the CECL under perfect foresight (6.50%). Under this assumption (as illustrated with green lines in the graph above) CECL reserves start to rise later than the perfect forecast assumption (in purple) but also slightly later than the historical reserves.

There is wide difference in change in levels too (Trough Vs Peak). The buildup of reserves occurs at a later time (after 5-6 Quarters) The level of CECL reserves is much higher because of the life of loan reserving requirement

A good forecast (close to perfect foresight) would allow the CECL reserves to be built up in recessionary periods. Otherwise, as illustrated above, a later build up (after the recession has started) would have procyclical implications worsening the impact of the recession.

## Conclusion

### Reasonable and Supportable Horizon

R&S horizon assumption could have material impact on the timing of CECL reserve build up.

During recession, the reserve curve is steeper and higher with increase in R&S while flatter with decrease.

However, the importance of R&S is hinged on the accuracy and timing of the future projections. As we move away from the perfect foresight assumption, the influence of R&S is also diminished.

### Reversion to Long Term Loss Rate

Impact on CECL reserves / Loans (%) is low. 75% change in mean reversion time (from end of R&S horizon) results in ~ 0.3% change (for overall period Q1' 2002 – Q2' 2015) in CECL reserves. Of course, a longer Mean reversion time frame helps smooth the transition from higher reserves to longer-term averages at the end of the recession. However, the overall impact of the mean reversion time is somewhat insignificant.

### Long Term Net Charge off rate

This is one of the most influential factors under CECL. CECL reserves are linearly co-related to long term charge off rates: 40% change in long term charge off rates results in ~ 40% change in average CECL reserves (for overall period) We predict that banks will take extra care in relating their historical experiences and portfolio compositions to future loss projections.

### NCO Forecast Inaccuracy

CECL reserves are highly sensitive to net charge off rate forecasts. Imperfect forecasts could be due to either modeling inaccuracies or the hard to predict nature of the economic crises.

### Expected Life of the Loan

- A 10% reduction in contractual maturity leads to 9.25% change in the CECL reserves. Not only would this reduce reserves in the downturn, but would have the impact of shifting the reserves down throughout the credit cycle.
- A 11.5% reduction in maturity of 10% of loans would lead to reduction of almost 1.3% in CECL reserves.
- CECL reserves are higher for mortgages compared to C&I loans on an average suggesting that the reserve requirements are more for products with longer maturities
- Impact of change is higher in the periods other than recession as compared to recession.

### Intangible impact

- The impact of lifetime reserves under CECL would create potential for banks to react by a combination of changing loan terms to charge higher rates for longer maturities, encouraging borrowers to borrow for a shorter-term basis
- Changing the mix of their loan portfolios to move away from longer-term maturity products and shift toward shorter-term products.
- The required CECL reserves for a shorter maturity portfolio would be less than half of what the banks held in reserves. This will leave little cushion for banks to absorb losses due to an unforeseen downturn and run counter to the intension of FASB's and Regulatory desire to have reserves build more quickly going into a downturn

## About Accenture

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