

Article

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CECL Impact on Credit Loss Allowances for U.S. Auto Loans

1. Introduction

U.S. auto lenders are in transition from incurred loss-based allowances for loan and lease losses (ALLL) to expected lifetime credit loss allowances. Industry participants believe loss allowances will rise as a result, but there is significant variation in their expectations. This question is top of mind for the industry, since higher loss allowances will have far-reaching implications for other parts of any lending business. Higher allowances for credit losses will impact capital levels, product offerings, business strategy, mergers and acquisitions, and more.

This paper examines the impact of adopting current expected credit loss (CECL) standards for U.S. auto lenders. We use a dataset of national retail auto loans to illustrate potential changes in model-based allowances across the industry. Our analysis shows that on the first day of CECL adoption, loss allowances for U.S. auto lenders could increase by as much as 1.5 to 2.5 times the current allowances. This wide range reflects the diversity of current accounting practices, economic outlooks across lenders, and portfolio composition. Several characteristics of the loan portfolio will drive the level of change. Lenders with longer loan terms will generally see larger increases. Younger loan books will also experience a greater increase than well-seasoned portfolios, so lenders with strong recent growth will be hit harder than loans currently in run-off. Those specialized in subprime lending will see lower proportional increases than prime lenders because of a smoother maturation pattern of the latter. Accounting practices such as the current loss emergence period will also be an important determinant of the magnitude of the change. Finally, a lender's economic outlook at the time of adoption will have an important influence on the size of the CECL impact. These findings, along with our methodology, are discussed in depth below.

We start with a single cohort of loans to illustrate the difference between incurred loss and lifetime losses. We establish the concept of a CECL impact ratio for gross losses and then show how recovery patterns change this ratio. We then estimate the ratio for the entire U.S. auto loan portfolio. Finally, we examine how the ratio varies with key accounting practices, credit quality, contractual maturity, and the economic cycle. We conclude the analysis with our expectations of the types of lenders whose loss allowances will be more affected when CECL is adopted.

This analysis uses a dataset of U.S. auto loans from CreditForecast.com, a partnership between Equifax and Moody's Analytics. For readers with an interest in the details of the dataset, we discuss these topics near the end of the paper.

It's important to recognize that although we examine a comprehensive national dataset in this analysis, the estimates presented could differ in practice because of underwriting, modeling choices, accounting practices, and management overlays that we do not account for below. Nevertheless, we trust the following analysis provides a useful starting point for those seeking to understand the potential impact of CECL on the U.S auto loan sector.

2. Single-Vintage Example

2.1. Gross losses

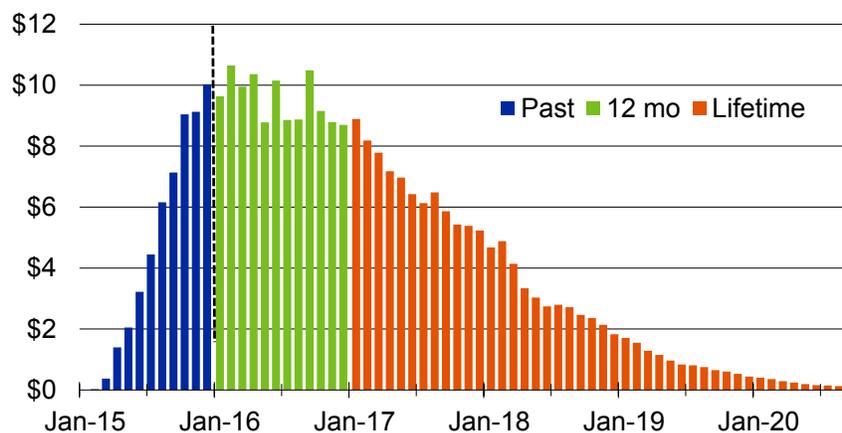
To estimate the impact of CECL, we create a “CECL ratio,” which divides expected losses over the lifetime by those expected over the loss-emergence period of the incurred loss model. For illustration purposes, we assume the loss-emergence period to be 12 months, although we will return to this important issue later.

As an example, consider a 2015Q1 loan cohort, issued to near-prime borrowers for 60 months and with a reporting date of December 2015. The cohort is shown in Chart 1. Blue bars are losses that have already been written off as of the reporting date. Assuming perfect foresight and near-term forward-looking allowances, the green bars are expected losses over the next 12 months. The orange bars are expected losses from 13 to 60 months, so lifetime losses are represented by the green plus orange bars. Losses prior to mid-2018 are historical, while losses beyond 2018 are from the CreditForecast forecasting model for auto loans. Losses are not discounted.

The incurred loss allowance is the blue area. As the reporting date roll forward, the loss allowance changes because the oldest month in the loss-emergence period (for example, January 2016) is written off, and a new provision is made for the incoming month in the rolling window (for example, January 2017). In contrast, lifetime loss accounting books all provisions up front, so the allowance is larger at the reporting date than it would be under the incurred loss model.

This cohort displays a loss pattern that is common to most loan cohorts; losses mount early in the life of the pool and tail off as the loans mature. This is partly because balances are higher closer to origination, but the pattern also holds for loss rates as well. It occurs for two reasons. First, bad borrower types charge off in the beginning since they are not willing or able to pay. Second, the remaining loan balance influences the decision to default, because it is less costly to a borrower to default early rather than waiting until later, when equity in the car is high. This loss pattern is important, because the tapering of losses among seasoned loans mitigates the CECL impact of the transition from incurred to lifetime losses. Most loss-forecasting models produce forecasts that are higher for new loans and lower as maturity draws near. As a result, Chart 1 is a good representation of how the expected credit loss will change when moving from incurred to lifetime expectations. In this example, the ratio of lifetime to 12 month gross losses on this cohort is 2.14. We will see that CECL impacts do vary substantially across cohorts over time as cohorts age.

Chart 1: Single-Cohort CECL Example
Gross losses, 2015Q1, near-prime, 60-mo loans, \$ mil



Sources: CreditForecast.com, Moody's Analytics

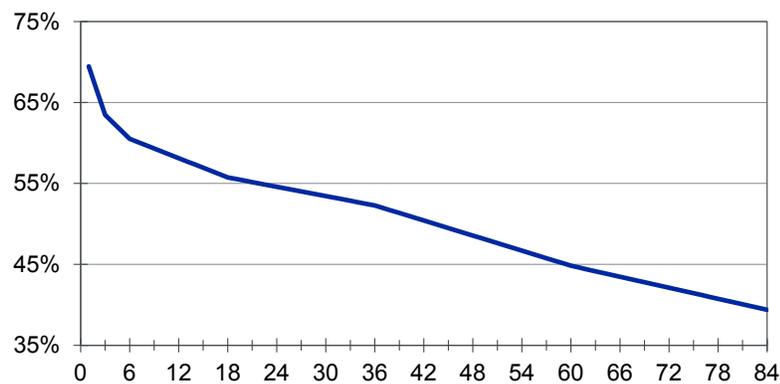
2.2. Recoveries

Although the example in Chart 1 illustrates the impact of CECL on gross losses, lenders estimate expected credit loss net of recoveries. Recoveries can affect the CECL ratio in several ways. Owners gain more equity in their cars as loans mature, despite normal depreciation. The loss given default rate consequently is lower for defaults that happen later in the loan's term. LGD rates can also change with the economy; they may be higher when in a recession because car prices become depressed or because collections and repossession operations cannot keep pace with the volume of defaults. Under these conditions, losses will be higher when the economic outlook is bad and lower when the outlook is good.

To evaluate the impact of recoveries on the lifetime estimates, we consider an LGD model that varies over the life of the loan. We estimate an aging schedule using data from U.S. auto loan securitizations over the past 25 years, where losses are clearly lower for borrowers who default later in their loan terms.

We apply this LGD curve to the gross losses from our example cohort, and the impact of CECL falls as expected. Although the ratio of lifetime to 12-month gross losses in the example cohort was 2.14, the impact is reduced to 2.08 when LGD falls over the loan term. The remainder of the analysis is expressed in terms of net losses.

Chart 2: LGD Falls With Months-on-Book
U.S. auto loan securitizations, 1993-2018



Sources: CreditForecast.com, Moody's Analytics

3. Portfolio Impact

We now turn to the lifetime impact on allowances for the whole U.S. Auto Loan portfolio. This includes loans of all score bands, all terms, and all vintages. As in the single-cohort example, we use historical data before this paper's publication date and we use a baseline scenario forecast for expected credit loss beyond mid-2018. The credit loss forecast ends in December of 2022, so we selected an accounting date that allows for full consideration of 72 month loans that end in December of 2022, or 6 years after our accounting date, which is 2016-12-01. While there are a small portion of 84 month loans in the U.S. Dataset, their losses in 2023 are minimal.¹

Table 1 shows current balances, 12-month allowances, and lifetime allowances in billions of dollars for the U.S. auto loan portfolio as of December 2016. It also shows 12-month and lifetime allowances as a percentage of outstanding balances. As in the single-cohort example, the incurred loss-emergence period is 12 months, and the forecast uses a baseline economic outlook as of mid- 2018. The lifetime allowance across the U.S. auto loan industry is just more than two times the 12-month allowance. CECL ratios for individual lenders will differ for several reasons, including current accounting practices, the profile of their loan portfolio (seasoning, term, loan quality), and their economic outlook. We now turn to these factors.

Table 1: US Auto Loans Allowances (\$ Billions), December 2016

Current Balance	ALL 12m	ALL Life	12m/Life	ALL 12M Rate	ALL Life Rate
\$1,051.52	\$17.16	\$36.41	2.12	1.63%	3.46%

¹ ECCL, a derivative of CreditForecast.com geared for custom CECL estimates, extends the forecast period

3.1. Current accounting practices

The existing standard of incurred loss is open to interpretation for the period over which loan losses are reserved against. The so called “loss-emergence period” differs by lender, and many fall between 12 and 18 months in the retail auto lending industry. The current reporting period significantly affects the CECL impact ratio, since more time in the incurred loss window means that the shift to lifetime losses will not be as consequential. In the extreme, an incurred loss-emergence period equal to the lifetime of the loan would have no impact under CECL.

Here we examine how sensitive the CECL impact ratio is to the loss-emergence period under current reporting. We estimate the ratio for the U.S. auto loan portfolio under 12 months to 18 months of net losses for the current loss-emergence period.

The CECL impact ratio falls from 2.12 times the current allowances when the loss-emergence period is 12 months to 1.59 at 18 months. Notice, however, that the marginal impact

falls with each additional month. When the loss-emergence period changes from 12 to 13 months, the drop in the CECL ratio is .13, but from 17 to 18 months the change is only 0.05. Clearly, a lender’s current incurred loss timeframe is a key determinant in the ultimate effect of CECL. The remainder of this paper uses a convention of the 12-month loss-emergence period to illustrate the effect of CECL, but the reader should be aware that this factor alone will have significant influence on the final impact of CECL.

Lenders also apply qualitative allowances beyond those suggested by the model forecast. If the qualitative allowances are currently large, then a change in the modeled loss component is less consequential. Put differently, existing loss buffers can be expected to mitigate the effect of the transition to a lifetime loss model.

Table 2: U.S. Auto Loans Loss-Emergence Period and CECL Impact Ratio

Loss emergence period	Ratio
12 months	2.122
13 months	1.986
14 months	1.869
15 months	1.776
16 months	1.704
17 months	1.642
18 months	1.589

3.2. Ratio over time

The CECL impact ratio is not constant over time. Lifetime compared with incurred loss rises and falls as recessions come and go. An expected recession beyond the loss-emergence period will raise the ratio. Meanwhile, CECL adoption toward the end of a recession would lower the ratio, since the bulk of the losses are already within the existing loss-emergence period.

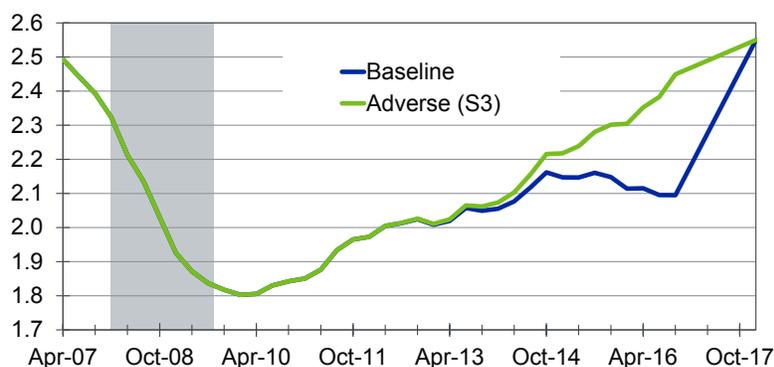
Chart 3 shows that the economy's location in the business cycle at CECL adoption will be an important factor in the initial effect of the standard. However, it is the forecast, not realized, economic outlook that affects the extent to which CECL adoption will change allowances. During good times, optimistic outlooks will lower the effect of CECL, whether that outlook is borne out or not. The uncertainty inherent in the economic outlook has led some companies to adopt multiple scenarios, weighted by their expected probabilities.²

The impact of CECL is quite sensitive to the business cycle. In addition to the baseline forecast, we can see that ECL forecasts performed using an adverse scenario raise the impact of CECL if those losses are more than 12 months into the future. In Chart 3, history extends until mid-2018 and the predicted recession begins in late 2018. By the end of 2016, the last reporting date shown, a large proportion of the loans are forecast to have substantial balances in 2018 and will experience greater losses under an adverse scenario than under the baseline scenario. This

raises the lifetime expected losses, but the 12-month incurred losses won't rise until 2018, when the recession scenario begins and ultimately reaches 7.2% unemployment in early 2020. As a result, the CECL ratio rises under the S3 scenario, Moody's adverse scenario compared to baseline. Chart 3 shows that although the impact of CECL rises as market participants expect the onset of a recession, the impact is roughly in line with the CECL ratio during the last recession, with lifetime losses below 2½ times incurred losses.

It's clear from Chart 3 that a probability-weighted economic outlook combination of scenarios will result in a CECL impact somewhere between the one that would be obtained with a baseline and an adverse economic outlook. Use of several scenarios has the potential to reduce reporting volatility due to the macroeconomic outlook. When the economy is doing well, a probability-weighted outlook will result in a higher ECL, and when the economy is doing poorly, the same approach would lower the ECL. This is due to the inherent asymmetry in macroeconomic scenarios, where there is limited upside but a large downside when the economy is booming. Likewise, recessions eventually subside, so the upside is larger than the downside in a struggling economy.

Chart 3: Effect Varies With Business Cycle
U.S. auto loan lifetime to 12 mo net losses



Sources: CreditForecast.com, Moody's Analytics

² See DeRitis, Cristian. Economic Scenarios: What's Reasonable and Supportable. Moody's Analytics Whitepaper. 2018.

3.3. Cohort age, term and loan quality

Months-on-book, or loan age, is an important reason for lifetime losses differing from incurred losses. The effect here is mechanical, with the ratio of lifetime to incurred losses falling with each successive reporting date until the two numbers match each other in the final year of the loan.

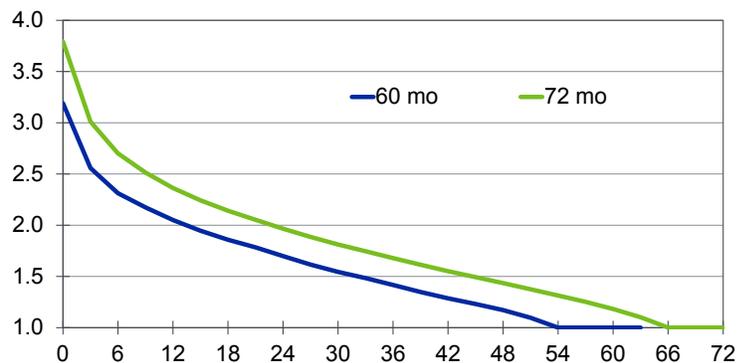
This is apparent in Chart 4, which shows the average ratio for the U.S. auto loan portfolio of 60- and 72-month loans. The ratio is initially high, above three times, in the first year of the loan. The maturation effect is substantial, with a 60-month loan cohort at 12 months experiencing an expected CECL ratio of around 2, and this number for the same cohort falls to 1.5 by 36 months. These results suggest that lenders with high levels of recent originations and younger loan books can expect to see a relatively larger impact of CECL on their allowances.

Chart 4 also shows that the loan term makes a difference to the impact ratio. Longer terms have higher lifetime-to-incurred loss ratios for two reasons. One is that longer loan terms simply extend the lifetime and allow for more defaults to occur at the end of a cohort's lifetime. Another is that longer loan terms make payments more manageable and prevent marginal borrowers from defaulting. The first reason raises the lifetime

losses (the numerator), while the second effect lowers the incurred losses (denominator). The net effect is a larger CECL ratio for longer-term loans. Statistical analysis that controls for months-on-book, credit quality, and the economy indicates that 72-month cohorts have had an impact ratio 0.7 times higher than for 60-month cohorts, which is even larger than shown in Chart 4. This means the impact of CECL on 72-month loans is substantially higher than for 60-month loans.

Although subprime borrowers require higher reserves, they have slightly lower CECL ratios than their prime counterparts. This is because their near-term incurred losses tend to be high, and they often don't make it to the end of their loan terms, either because they have defaulted or prepaid on a high-interest-rate loan. Therefore, there are more losses in the near term than long term for subprime customers. However, the impact of prime borrowers on the lifetime ECL should not be overstated. Although there is a clear pattern of subprime borrowers having lower lifetime-to- near-term ratios, the effect of switching from a fully subprime portfolio to a prime one is on the order of 0.1 times, or about the same as one extra month in the current loss-emergence period.

Chart 4: Effect Falls With Months-on-Book
CECL lifetime to current loss estimates



Sources: CreditForecast.com, Moody's Analytics

4. The Data

This paper uses a dataset of U.S. auto loan historical performance, and forecasts from CreditForecast.com, a joint project between Equifax and Moody's Analytics. Credit Forecast covers many product types within the auto space, and this dataset contains information for all U.S. retail auto loans, both from banks and from auto finance companies. Leases are not included. Gross losses, also referred to as "closed negatives," are default balances plus losses due to bankruptcy filings. The data are available across many dimensions, including loan-score band, term, and origination cohort. Whereas Figure 1 shows the loss profile for a single cohort, the portfolio estimates are aggregations of lifetime and incurred losses across many similar such cohorts. The net loss series equals defaults multiplied by LGD plus bankruptcies, assuming auto lenders would not recover much in the event of a bankruptcy. However, this assumption doesn't affect the results, since bankruptcies are relatively small in comparison to total default balances, making up just 15% of all closed negative accounts in any given month. The LGD parameters are derived from securitized pools of U.S. auto loans from 1993 to 2018, and the economic forecasts in all cases are driven in part by Moody's economic outlook under several scenarios.

5. Conclusion

CECL is expected to raise lenders' loss allowances, but the extent to which this will happen is unknown. We estimate a wide range for the allowance increase and show how a broad set of factors will affect the impact of CECL on any given lender. Depending on specific circumstances, a lender's increase in model-based loss allowance could reach more than two times the incurred loss number.

The impact of CECL for a given lender will depend on the company's current accounting practices, portfolio composition, and economic outlook. Lenders that currently have longer loss-emergence periods and larger qualitative buffers will see a smaller impact from CECL. Lenders that have had strong recent growth, have more prime borrowers, hold lots of longer-term loans such as 72-month contracts, and foresee an economic slowdown in the medium term should all expect to have higher lifetime losses relative to their existing incurred losses.

Significant uncertainty still remains for individual lenders as they develop their lifetime estimates. Because allowances are so central to lending strategy and financial planning, we urge companies to develop their estimates well before the adoption date to avoid surprises.

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