CECL Under Stress

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1. Introduction

A large and growing body of economic research finds that economic uncertainty is countercyclical – rising during recessions and falling during expansions. This relationship arises at least in part because sharp increases in uncertainty can cause economic downturns. In this note, we raise the possibility that the new accounting standard for determining loan loss reserves—the "Current Expected Credit Losses" or "CECL" methodology—will add to the uncertainty channel of business cycle fluctuations. Due to uncertainty surrounding the near- and longer-term impacts of the global pandemic, together with the lack of perfect foresight in forecasting future macroeconomic conditions, banks indicate that they have been estimating expected losses conservatively by placing extra weight on downside scenarios or applying a qualitative adjustment. Such conservatism could result in a portion of loss reserves functioning like regulatory capital, in that banks' best estimates of expected loan losses could be higher than actual losses ultimately realized on average, over time. Moreover, reserves may tend to systematically exceed loan losses by more in bad times than in good, effectively creating a procyclical capital buffer (in addition to regulatorily required capital buffers).

Loan loss reserves, also called the "loan and lease loss allowance," are a balance sheet account to recognize loan losses. When a bank records a reserve for a loan, the gross loan outstanding continues to be recorded at its amortized cost (e.g., at "par" if no fees, purchase premium or discount) as an asset on the bank's books, but the reserve is a contra (negative) asset that reduces the amortized cost to arrive at the net amount expected to be collected. Before Jan. 1, 2020, banks calculated the reserves using the "Incurred Loss" methodology. Under this methodology, banks took a reserve for an incurred loss that was "probable and estimable" over the next year or other loss confirmation period. When a bank determined that a loss was likely (based on information that it had received about a borrower), it would take a reserve for an estimate of the loss amount.

On Jan. 1, 2020, all large banks were required to implement accounting for loan loss reserves using the "Current Expected Credit Losses" or "CECL" methodology (implementation for many other banks was delayed until 2023). CECL is quite different from the Incurred Loss methodology. Under CECL, banks are required to create an allowance when they originate a loan for expected losses over the life of the loan and then to revise the allowance as expectations change.

As discussed in [Covas and Nelson (2018)](#), CECL has a couple of serious problems.[1] First, banks are required to provision (add to loss reserves) against losses at origination for each loan. The provision is based on the historical loss experience of similar loans under the currently projected economic conditions. Provisions are deducted from income and so reduce bank profits and capital. The losses banks are forced to book when they originate a new loan are sizeable. Covas and Nelson estimated that for a $500,000 first-lien mortgage loan, at origination a bank would be booking a loss of $3,000 in good times and $28,000 in bad times. The loss when the loan is booked occurs because CECL forces the bank to book total expected lifetime losses. However, the initial provision does not recognize the total expected lifetime risk premiums embedded in the lending rate to compensate the bank for those losses.[23]

Second, although billed by its supporters as a change that would make loan loss reserves less procyclical, CECL is likely to be more procyclical than the Incurred Loss methodology. Expected lifetime loan losses rise sharply when the economy worsens, and recessions are extremely difficult to predict (even when not caused by a pandemic). Consequently, CECL forces banks to increase their loss reserves on their existing loans and book higher losses on their new loans precisely when the economy enters a downturn. Covas and Nelson estimated that, had CECL been in place, bank lending would have fallen by another 9 percent during the 2007–09 crisis.

Another albeit less serious problem with CECL is that provisions after loan origination should be negative about as often as they are positive, an outcome with which bankers, supervisors and accountants may be uncomfortable. Under the Incurred Loss methodology, negative provisions were relatively uncommon, because a loss reserve was only created when a loss was probable. But arriving at best estimate of expected losses for existing loans should be as likely to rise as to fall each quarter. An instinct that provisions should generally be positive could be contributing to the bias toward conservatism in the environment this year of tremendous uncertainty and conflicting information that we will discuss.

This note demonstrates that as CECL has been implemented so far, these problems are likely to be even worse than anticipated in Covas and Nelson, as many banks indicate that they are calculating reserves based on their outlook for loan losses in the event that economic conditions end up being worse than implied in their central, base case scenarios due to significant uncertainty and lack of perfect foresight.

As a rough rule of thumb, loan loss reserves are for expected losses, and capital is for unexpected losses. If firms' best estimates of expected losses are being set using an economic outlook that is too conservative, then reserves are becoming more like capital. In addition, the losses that banks will book when making new loans (particularly loans to households with marginal credit histories and to small

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[1] See also "Testimony of William Nelson, Chief Economist, Bank Policy Institute before the Financial Institutions and Consumer Credit Subcommittee of the Committee on House Financial Services, U.S. House of Representatives," December 11, 2018, available [here](#).

[2] Consider a bank whose assets consist of only one new loan for $1,000 that has an expected lifetime loss rate of 5 percent offset by a 5-percentage-point higher interest rate. Other lenders would charge the same interest rate, and the bank could sell the loan for $1,000 to another bank if it wanted to. Under CECL, the bank's assets would equal $950 ($1,000 − $50 reserve).

[3] Professor Stephen Ryan of NYU in Ryan (2019) suggests instead that the initial provision be amortized over the life of the loan.

businesses) will be higher, although those higher initial allowances will be offset, on average, over time by reductions in the allowance as loans mature and do better than projected.

Moreover, as described below, provisions established in stressed and uncertain conditions may tend to exceed realized losses on average by more than provisions in regular times. Consequently, the procyclicality of CECL will be worse than demonstrated in Covas and Nelson. Not only will banks have to provision excessively when the economy dips into a recession because the outlook has worsened unexpectedly, but the provisions will be even higher because the outlook will have become more uncertain.

WHAT DOES CECL SAY?

Under CECL, loan loss reserves are required to be a measure of "expected credit losses" that incorporates "reasonable and supportable" forecasts of economic conditions. Specifically, the standard[4] states:

> **326-20-30-9** 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. [emphasis added]

And

> **326-20-55-2** In determining its estimate of expected credit losses, an entity should evaluate information related to the borrower's creditworthiness, changes in its lending strategies and underwriting practices, and the *current and forecasted direction of the economic and business environment*.

FASB was fairly specific that the calculation of expected losses should not over-weight stress-case economic scenarios. FASB stated that it chose not to use the term "lifetime" losses in part because for some people ". . . the term lifetime suggests the measurement of a stress-case (or worst-case) credit loss scenario." FASB also indicated that it expected that bank formulation of expectations of future losses should improve over time as they acquire more experience. FASB stated:

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[4] "Financial Instruments—Credit Losses (Topic 326). Measurement of Credit Losses on Financial Instruments." *FASB Accounting Standards Update,* June 2016. https://www.fasb.org/jsp/FASB/Document_C/DocumentPage?cid=1176168232528&acceptedDisclaimer=true

> The Board understands that there generally is a range of reasonable outcomes and, therefore, expects there to be differences between estimates of expected credit losses and actual credit losses. Ultimately, estimates of future losses and actual losses should converge to the same amount. An entity should continue to refine future estimates of expected credit losses based on actual experience.[5]

Because "realized losses" will always be different from "expected losses" formed in advance, irrespective of how refined the process for created expected losses, it is a bit unclear from this quote exactly what convergence FASB has in mind.

WHAT HAVE BANKING AGENCIES SAID?

The guidance the federal banking agencies having offered banks on how to implement CECL appears, at least to some extent, to encourage banks to maximize their loan loss allowances, subject to the limit that regulators must follow GAAP. Unsurprisingly, the guidance largely repeats the FASB language. For example, in "Interagency Policy Statement on Allowances for Credit Losses,"[6] issued in May 2020, the agencies state:

> In estimating the net amount expected to be collected, management should consider the effects of past events, current conditions, and reasonable and supportable forecasts on the collectibility of the institution's financial assets. FASB ASC Topic 326 requires management to use relevant forward-looking information and expectations drawn from reasonable and supportable forecasts when estimating expected credit losses.

But the agencies' guidance is inconsistent on the issue of whether expected losses should be conservative. On the one hand, they state that one of bank management's responsibilities is

> Periodically performing procedures that compare credit loss estimates to actual writeoffs, at the portfolio level and in aggregate, to confirm that amounts recorded in the ACLs were *sufficient to cover actual credit losses*. This analysis supports that appropriate ACLs were recorded and provides insight into the loss estimation process's ability to estimate expected credit losses. [emphasis added]

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[5] "Topic 326, No. 2: Developing an Estimate of Expected Credit Losses on Financial Assets," *FASB Staff Q&A*, July 2019*.*
https://www.fasb.org/cs/ContentServer?c=Document_C&cid=1176172970152&d=&pagename=FASB%2FDocument_C%2FDocumentPage

[6] *Interagency Policy Statement on Allowances for Credit Losses.* May 2020.
https://www.federalreserve.gov/supervisionreg/srletters/SR2012a1.pdf

Instructions that bank management ensure that the allowance for credit losses is "sufficient" to cover losses while not calling on them to ensure that the allowance is not excessive could instill an upward bias. If the allowance equals expected losses, then, on average, the allowance will be insufficient roughly as often as it is more than sufficient.[7] Presumably, management would be criticized by bank examiners if an allowance turned out to have been too low, but not one that turned out to be too high, at least based on this part of the guidance.

Another part of the guidance, however, does raise the possibility that bank examiners will criticize banks for having allowances that end up systematically too high or too low. The guidance states that examiners will do the following:

> Review the appropriateness and reasonableness of the overall level of the ACLs relative to the level of credit risk, the complexity of the institution's financial asset portfolios, an available information relevant to assessing collectibility, including consideration of current conditions and reasonable and supportable forecasts. Examiners may include a quantitative analysis (e.g., using management's results comparing expected write-offs to actual write-offs as well as ratio analysis) to assess the appropriateness of the ACLs. This quantitative analysis may be used to determine the reasonableness of management's assumptions, valuations, and judgments and understand variances between actual and estimated credit losses. *Loss estimates that are consistently and materially over or under predicting actual losses may indicate a weakness in the loss forecasting process*; . . . [emphasis added]

WHAT HAVE BANKS SAID?

Many banks have indicated that they are setting their loan loss reserves based on downside scenarios given significant uncertainties associated with the global pandemic and lack of perfect foresight in forecasting future macroeconomic conditions. Some banks base their estimates of expected losses using multiple economic scenarios, and the conservatism is reflected in weighting the downside scenarios more heavily than the upside ones. Banks have also indicated that they have made qualitative upward adjustments to their forecast of expected losses. Here is a sampling of remarks at fourth-quarter earnings calls in January 2021:

> And so, with the near-term outlook still quite uncertain, we remain heavily weighted to our downside scenarios, and at nearly $31 billion we are reserved at approximately $9 billion above the current base case.
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> - JPMorgan Chase

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[7] Strictly speaking, loan and lease loss allowances under CECL could be more likely to be revised up or more likely to be revised down because forecast errors could be skewed. Perhaps most relevant, severely bad events could be more likely than extraordinarily good ones. If so, then allowances will be more likely to be revised up than down. Nevertheless, the expected value of positive misses (probability times amount) will equal the expected value of negative misses.

> As a reminder, these reserves include our estimate of lifetime credit losses tied to a specific base scenario as well as a management adjustment for economic uncertainty, which provides for the possibility for a more adverse outcome. Our reserve release this quarter primarily reflects our improving macroeconomic outlook, although I would note, we did add to our management adjustment for economic uncertainty as the pace and shape of the recovery is still evolving.
>
> - Citigroup

> . . . we're seeing what everyone else is seeing, which is that the performance is substantially better than we would have thought when we went into this, and when a lot of those CECL reserves were established . . . we've been very clear in terms of what it takes to start to use that, which is we'd like to see something, which we really do believe is more sustained and more equitable recovery because so many uncertainties exist. So, everything that we see is extremely positive. But we think the right thing to do is to be prudent there. And so, overall, the only—really the only meaningful reserves that we reversed were because of the student loan sale, which we had to do.
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> - Wells Fargo

With respect to key variables used in setting our reserve, as done in previous quarters, we continue to include a number of downside scenarios. Based on our Q4 '20 weighting of those scenarios, GDP is forecasted to return to its Q4 '19 level in the early part of 2022. This improved by a couple of quarters relative to Q3. The weighting scenario also resulted in an unemployment rate at the end of 2021, consistent where it is today, just north of 6.5%. [For comparison, the December 2020 Blue Chip Survey indicated that the Blue Chip panel expected GDP to return to its 2019:Q4 peak by Q3 or Q4 2021 and that the consensus forecast for unemployment rate at the end of 2021 was 5.7 percent.[8]]

Q: . . . when you look at relative to the base case, how much of the reserve is still related to qualitative factors, meaning that if the base case comes true, that could be released over time?

A: . . . as you think about real reserve setting and lifetime reserves, is that the economic assumptions are clarifying and the end of the COVID era is clarifying with the vaccine. And as we see that, you'll see the uncertainty come down pretty quickly on the other side of that, when that shows up in our assumption.

So, we weighted—downside nearly 50% of the elements that weighting will come down over time. And so, when that comes down over time, you'll see the reserve releases come away from that.

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[8] Calculated using real-time historical GDP data as of December 2020 and Bank of America's economic forecast at the end of 2020.

> The second thing is, as the duration of the rest of the crisis comes in, with more certainty [, i.e.,] more people vaccinated, you'll also see the lifetime calculation include the other side of the river to bigger portion, and so that will drive it. So, both those things will change it. And as Paul said earlier, if you look at our underlying economics team, they have the economy crossing over where it was before and growing past in terms of sheer size, the end of this year and our reserve setting takes it in the next year and things like that. So, we are using a more conservative case which implies judgment.
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> - Bank of America

HOW DOES ECONOMIC UNCERTAINTY CHANGE OVER THE BUSINESS CYCLE?

If banks set their reserves based on above-baseline forecasts of loan losses, then, because uncertainty is higher in bad times than in good, the forecasts will likely be higher than expected losses in bad times than in good. As a result, loss provisions will be procyclical. For example, as can be seen in Exhibit 1, two popular indexes of economic uncertainty based on news coverage, forecaster disagreement and other data (available here, see also Baker and colleagues (2016)), are higher in recessions than expansions. Moreover, as reported in Table 1, the indexes are negatively correlated with the output gap (a positive gap meaning that output is below potential).
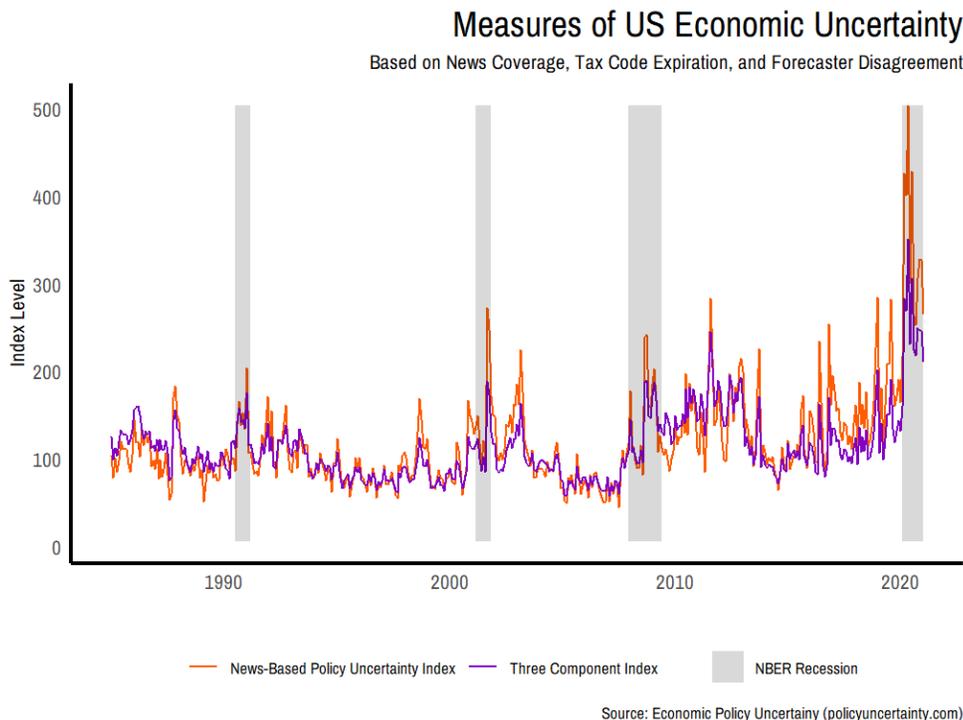
Exhibit 1

Measures of US Economic Uncertainty
Based on News Coverage, Tax Code Expiration, and Forecaster Disagreement

Source: Economic Policy Uncertainy (policyuncertainty.com)

Table 1: Correlations with Output Gap

Series	Spearman Correlation Coefficient
Three Component Index	−0.60
News-Based Policy Uncertainty Index	−0.41

Source: Economic Policy Uncertainty (policyuncertainty.com)

and FRED, Federal Reserve Bank of St. Louis.

Indeed, there is a growing body of economic research documenting sizeable increases in uncertainty during (and also as a cause of) economic downturns. For example, Jurado and colleagues (2015) estimate a macroeconomic uncertainty index using a data set of several hundred macroeconomic and financial data series. They find that their index is highest during severe recessions and that large increases in the index are followed by protracted declines in economic activity. Using U.S. Census data, Bloom and colleagues (2012) demonstrate that measured uncertainty is strongly countercyclical at both the aggregate and industry level, and that the uncertainty appears to be driving slow growth rather than the reverse. Orlik and Veldkamp (2015) use real-time GDP data to estimate a model of economic agents' uncertainty that includes uncertainty about how the economy works, as well as the possibility that outcomes are not normally distributed. They find that uncertainty is driven by variations in the probability of "black swans"—rare but extreme negative events. The probability of such events rises during an extreme negative event such as a global pandemic.

Other researchers have built models that shed light on how increases in uncertainty can cause economic downturns. Fajgelbaum and colleagues (2016) demonstrate how the reluctance of businesses to make irreversible investments when uncertainty rises can lead to "uncertainty traps." Rising uncertainty leads to slower growth, which leads to even more uncertainty.

Because uncertainty about the outlook for the economy is greater in bad times than good, then it is highly likely that uncertainty about future loan losses is also greater in bad times. One way that a bank could take a conservative approach to projecting loan losses would be by creating projections that will only have a certain probability of being exceeded, where the probability is noticeably less than 50 percent—25 percent, for instance. Such an approach would be consistent with the bank regulators' guidance that bank management should ensure that the bank establishes a loan and lease loss allowance sufficient to cover losses. A bank that was consistently conservative, in that the desired probability was unchanged over time, would provision more over expected losses in bad times than in good ones because of the cyclicality of uncertainty.

HOW BIG ARE THESE EFFECTS?

For many reasons, it is far too early to estimate by how much loan loss reserves under CECL implemented with conservative projections will exceed average realized loan losses. Bankers, accountants, and bank examiners are all getting used to CECL. There is little reason to believe that allowances set in 2020 will be representative of future practices, especially because of what an odd year it was. Moreover, it takes a lot of data to estimate biases in

expectations. Realizations are generally above or below expectations (sometimes by a lot), so many years of observations of what actually ends up happening are needed to reliably judge whether expectations were actually biased, as opposed to being simply wrong. Estimating the probability of black swan events is especially difficult, and in fact nearly impossible.

It is useful, however, to develop a ballpark estimate of how big an issue conservatism in setting allowances could be. Projected loan losses are highly sensitive to economic conditions. In the Fed's December 2020 stress test, for example, summing across banks, banks are projected to make $239 billion in loan losses under the baseline scenario versus $514 billion in loan losses under the severely adverse scenario, or nearly twice as much. The severely adverse scenario is extraordinarily severe. Suppose bank loan loss projections for CECL fall halfway between baseline and severely adverse and are, on average, 50 percent too high. When CECL was adopted, banks did not change loan loss reserves by much, so the past is probably a reasonably rough guide for how large allowances will be. Since 1991Q1, loan loss reserves have averaged 1 percent of loans. Loans are about 40 percent of assets, and risk-weighted assets are about 60 percent of assets. Adding it all up (or really multiplying and dividing it all up), a reserve 50 percent too high will reduce measured bank capital by about 30 basis points. Those 30 bps of RWA equal capital being held in the form of loan loss reserves.

Moreover, historically, the loan loss allowance varies a lot over the business cycle. In good times, relative to loans, the allowance is about half as large; in bad times, it is two to four times as big. Using those rough proportions, in expansions, the reduction in capital would be 16 basis points; in contractions, it would be 100 bp. That's a procyclical capital buffer large enough to be concerned about.

It is worth noting that these reserves-acting-like-capital come on top of the general increase in loss reserves using CECL relative to the Incurred Loss methodology that already warrants a permanent recalibration of regulatory capital requirements. In March 2020, given the volatile economic environment, the banking agencies allowed banks to defer for two years the estimated impact of CECL on regulatory capital, followed by a three-year transition to phase out the capital benefit provided in the first two years (i.e., five-year transition total).[9] Nevertheless, in a recent publication in Banking Law Journal, Stephen Ryan of NYU and John Drum and Evan Carter of Analysis Group, Inc. concluded:

> While regulatory agencies are allowing banks to delay the impact of the CECL adoption on regulatory capital, this is only a temporary solution to effects of the new standard on lending capabilities. The adoption of CECL does not alter the health of banks—CECL merely reports information that banks should already know. Instead, regulatory agencies may need to consider changing the regulatory capital requirements as a more permanent solution.[10]

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[9] Federal Register, "Regulatory Capital Rule: Revised Transition of the Current Expected Credit Loss Methodology for Allowances," March 2020, available at https://www.federalregister. gov/documents/2020/03/31/2020-06770/regulatory-capital-rule-revised-transition-of-the-current-expected-credit-losses-methodology-for.

[10] Ryan, Stephen, John Drum, and Evan Carter, "Allowances for Loan Losses Under the Transition to CECL During the Pandemic," Banking Law Journal, November/December 2020, pp. 539-553.

Lastly, for many of the banks subject to the stress tests, the cost of setting a conservative loan loss reserve is offset by lower projected peak to trough declines in capital ratios in the stress tests. In the Fed's stress projections, banks are assumed to establish a loan loss reserve based on projected losses under the stress test economic scenario, so each dollar increase in the reserve going into the test corresponds to a dollar higher projected pre-tax net income and therefore a dollar more of capital (less than a dollar because of taxes). Since bank capital requirements are determined in part by the size of the projected decline in capital under the test (unless the projected decline is less than 2.5 percent of risk-weighted assets), any reduction in a bank's measured capital owing to a higher loss reserve at the start of the stress test is roughly matched by a reduction in the bank's capital requirement for banks whose projected decline exceeds 2.5 percent of risk-weighted assets. If stress tests are the primary determinant of bank's capital levels, this stress-test offset would make it less costly for banks to set the allowance for credit losses conservatively, and would also lessen the procyclicality of CECL at the aggregate level.

Conclusion

CECL just started a year ago, and everyone is still getting used to it. It is far too early to attempt to quantify the effect of the consequences of conservatism in arriving at banks' best estimates of expected losses described in this note. It may even be too early to raise concerns.

In some ways, CECL has done pretty well so far. As its supporters had hoped, the large allowances established by banks at the end of the first quarter in 2020 when the pandemic hit increased investor confidence that banks were well prepared to weather the severe economic downturn that was expected.

That said, the sharp increase at the moment the recession begins was exactly what Covas and Nelson predicted using real-time economic analysis as opposed to the more gradual increase well in advance of a recession that the supporters of CECL predicted using analysis that assumed perfect foresight.

But beginnings are important times. Banks and bank supervisors are naturally conservative. Everyone, including accountants, is used to provisions usually being positive. And the impact on effective capital requirements could be material. As the kinks are being worked out, and before practices get embedded, it may be important to remember that CECL allowances are intended to be set based on firms' best estimates of expected loan losses; and expected losses, whether established in good times or bad, should not systematically fall below or exceed realized losses on average, over time.

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