

ANALYSIS

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Prepared by

Sohini Chowdhury, PhD
Sohini.Chowdhury@moodys.com
Director and Senior Economist

David Fieldhouse, PhD
David.Fieldhouse@moodys.com
Director/Consumer Credit Analytics

Contact Us

Email
help@economy.com

U.S./Canada
+1.866.275.3266

EMEA
+44.20.7772.5454 (London)
+420.224.222.929 (Prague)

Asia/Pacific
+852.3551.3077

All Others
+1.610.235.5299

Web
www.economy.com
www.moodysanalytics.com

Concerned With Forecast Uncertainty in CECL? Look Beyond the Baseline

Introduction

"Economists exist to make weather forecasters look good." Although this old joke takes a jab at economic forecasters, it also highlights the limitations of predicting the economy with any real degree of precision. Unlike natural science, economics is a social science in which market outcomes are driven by the unpredictable, uncertain and often irrational behavior of market participants. Current Expected Credit Losses, or CECL, the new credit loss accounting standard that goes into effect early next year for most SEC filers, has again brought this fact to light. Why? Because CECL, unlike its predecessor, requires institutions to incorporate reasonable and supportable forward-looking projections of the economy in their allowance for loan losses. Consequently, allowance estimates under CECL are sensitive to the economic outlook, unlike allowances estimated using a primarily backward-looking incurred-loss approach.

Concerned With Forecast Uncertainty in CECL? Look Beyond the Baseline

BY SOHINI CHOWDHURY AND DAVID FIELDHOUSE

"Economists exist to make weather forecasters look good." Although this old joke takes a jab at economic forecasters, it also highlights the limitations of predicting the economy with any real degree of precision. Unlike natural science, economics is a social science in which market outcomes are driven by the unpredictable, uncertain and often irrational behavior of market participants. Current Expected Credit Losses, or CECL, the new credit loss accounting standard that goes into effect early next year for most SEC filers, has again brought this fact to light. Why? Because CECL, unlike its predecessor, requires institutions to incorporate reasonable and supportable forward-looking projections of the economy in their allowance for loan losses. Consequently, allowance estimates under CECL are sensitive to the economic outlook, unlike allowances estimated using a primarily backward-looking incurred-loss approach.

Forecast revisions are inevitable

Unfortunately, the cone of uncertainty around every economic forecast is wider when the economy is at a turning point in the business cycle, like it is today. This is because market signals during such transition times are more likely to pick up noise and be subject to later revisions. What happens when an economic forecast overshoots or undershoots in period t ? The forecast is likely to be adjusted at period $t+1$. A key variable that is forecast under the Moody's Analytics baseline, or most likely, scenario that has moved materially over the past year in step with the changing market signals is the effective federal funds rate, also known as the monetary policy rate. Not only has the near-term forecast changed direction—from calling for multiple rate hikes at the beginning of the year to multiple rate cuts today—the equilibrium, or long-term, interest rate path is also materially lower in September's forecast compared with at the begin-

ning of the year (see Chart 1). Since the monetary policy rate is a key driver of other interest rates and economic activity, these quarterly changes have trickled down to other economic variables, including the unemployment rate, which directly drives losses in many credit models. For CECL, this has the unattractive consequence of creating earnings volatility. What should institutions do to account for this uncertainty in economic forecasts?

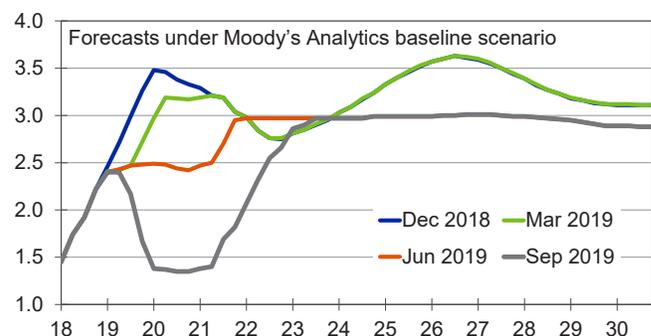
Alternative scenarios to the rescue

One approach is to consider multiple alternative projections of the economy, in addition to a baseline projection. The good news

is that economic forecasters, aware of their handicap, often produce projections of the economy under various alternative what-if states or scenarios, in addition to the baseline scenario. Chart 2 shows the Moody's Analytics forecasts of year-over-year U.S. real GDP growth under a baseline scenario, a 10% upside scenario in which the economy performs better than in the

Chart 1: Forecasts Shift With Market Signals

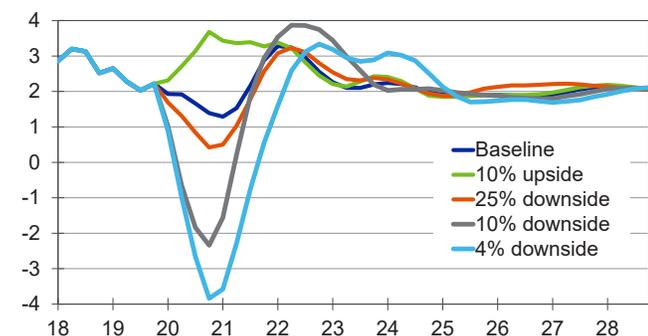
U.S. federal funds rate, % per annum, NSA, multiple vintages



Sources: Federal Reserve Board, Moody's Analytics

Chart 2: A Range of Possibilities

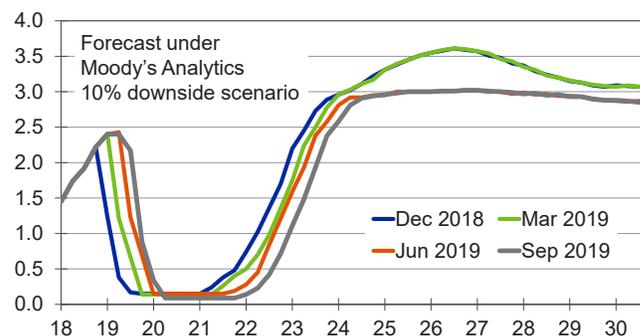
U.S. real GDP growth, % chg yr ago, Moody's Analytics scenarios



Sources: BEA, Moody's Analytics

Chart 3: Less Movement Outside Baseline

U.S. federal funds rate, % per annum, NSA, multiple vintages



Sources: Federal Reserve Board, Moody's Analytics

baseline, a 10% downside scenario representing a moderate recession, and a 4% downside scenario that is equivalent to a deep recession.

An institution can leverage this information to estimate its CECL reserves as an average of the reserves under various multiple alternative future states of the economy, weighted by the likelihood of the occurrence of each state. In doing so, the institution recognizes that the economy can, in fact, always undershoot or overshoot the baseline.

Today, few would disagree that the global economy is cooling and facing multiple near-term risks weighted to the downside. Economists' predictions for the U.S. economy for the next 12 months range from a demure slowdown in growth to an actual contraction in output. In this uncertain environment, such a probability-weighted multiple scenario approach allows the institution to formally bake future downgrades into its CECL estimate today by considering the possibility of a worse-than-baseline outcome tomorrow. Similarly, in periods when the economy is emerging from a downturn and has more room to improve, including an upside scenario in

CECL calculations works as a hedge against upside revisions to the baseline.

Besides the fact that there is the potential to better handle uncertainty in economic forecasts, incorporating multiple scenarios also results in more accurate estimates of lifetime credit losses in a benign economy by considering the possibility, however low, of the economy surprising to the downside. This is because credit losses are generally nonlinear in relation to the economy; the increases in losses when the economy turns bad are usually much worse than the decreases in losses when the economy turns good. So, using a single-baseline outlook to estimate the lifetime expected losses in benign times will usually underestimate the true lifetime losses.

Cut out the forecast noise, gain earnings stability

Another feature of the alternative scenarios is that relative to the baseline, they face a lower likelihood of material downgrades—there is less room for further deterioration in a downside scenario and less room for further improvement in an upside scenario.

In this sense, the upside and downside scenarios can be thought of quasi-floors that are associated with less uncertainty, and therefore less revision.

Chart 3 shows the revisions made to the federal funds rate forecast under the Moody's Analytics 10% downside scenario since the beginning of this year. Clearly, the revisions to the downside scenario forecast of this key variable during the last nine months have been significantly less material than the revisions to the baseline forecast.

Fewer material revisions to the alternative scenarios means that a multiple-scenario approach will generally produce more stable expected loss estimates by dampening some of the noise in the baseline economic forecasts. To test this hypothesis, we utilized [consumer credit models](#) produced by Moody's Analytics. The credit models leverage consumer-loan performance data from credit bureau Equifax and [economic forecasts](#) from Moody's Analytics to estimate the lifetime expected credit loss, or ECL, rates. Table 1 shows the standard deviations of the quarterly percentage changes in the ECL rates from 2016

Table 1: Dispersion of Quarterly Percentage Changes in ECL Rates for Key Consumer Product Categories 2016Q2 to 2019Q3

| | Auto bank loan | | Bankcard | | First mortgage | |
|--------------------|-----------------|--------------------|-----------------|--------------------|-----------------|--------------------|
| | Single scenario | Multiple scenarios | Single scenario | Multiple scenarios | Single scenario | Multiple scenarios |
| Standard deviation | 3.13 | 3.06 | 4.41 | 4.2 | 6.44 | 6.38 |

Source: Moody's Analytics

to 2019 for several key consumer product categories estimated using a single-scenario approach and a multiple-scenario approach. Under the single-scenario approach, the ECL rates are estimated under the Moody's Analytics baseline scenario. Under the multiple-scenario approach, the ECL rates are estimated under the Moody's Analytics baseline, 10% downside, and 10% upside scenarios, with the scenarios weighted 40-30-30, respectively. The choice of weights is discussed [here](#).

The dispersion in quarterly ECL rates from 2016 to 2019 is lower when using

multiple scenarios. Note that since the uncertainty around economic forecasts is higher when the economy is transitioning across states, we will likely see higher gains in stability from using multiple scenarios if we were to rerun this exercise to cover a full business cycle. We should also point out that this exercise does not tease out the quarterly changes in ECL rates that result purely from changes to the economic forecasts. Some of the quarterly changes in the ECL rates are likely due to portfolio changes. But since the portfolio data is the full universe of all lenders reporting

to Equifax, systematic portfolio shifts in the last three to four years are likely to be immaterial.

The takeaway

The inability to predict the economy with 100% certainty makes frequent revisions to the economic outlook inevitable. Recognizing credit losses under multiple what-if states of the economy can help dampen the noise in the forecasts, and in the process produce more accurate, reasonable and stable expected credit loss estimates.

About the Authors

[Sohini Chowdhury](#) is a director and senior economist with Moody's Analytics. She specializes in macroeconomic modeling and forecasting, scenario design and market risk research, with a special focus on stress-testing and CECL applications. Previously, she led the global team responsible for the Moody's Analytics market risk forecasts and modeling services while managing custom scenarios projects for major financial institutions worldwide. An experienced speaker, Sohini often presents at client meetings and industry conferences on macroeconomic models, scenarios and CECL solutions. Sohini holds a PhD and a master's degree in economics from Purdue University, and a master's degree in applied statistics from West Chester University in Pennsylvania. Before joining Moody's Analytics in 2011, she taught economics at the University of Cincinnati.

[David Fieldhouse](#) is a Director in the Content, Economics and Structured Analytics Division of Moody's Analytics. His responsibilities include developing and validating models of retail loan performance for financial institutions. He also provides regular analysis and commentary on consumer credit markets. David has a PhD from the University of Western Ontario.

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