Episode 6: The Monthly Update Process

In episode 6 of the Everything GOES podcast, Bill Pauling and Casey Pursley discuss the updates made to the GEMS® model parameters to generate the monthly NAIC GOES scenario sets.

SEGMENT 1—OPENING

[Joe Golaszewski] Hi, and welcome back to the Everything GOES podcast, where we discuss the NAIC's upcoming transition from the Academy Interest Rate Generator scenarios to the new GOES scenarios. I'm your host, Joe Golaszewski, and I'm joined today by my colleagues Bill Pauling and Casey Pursley. Bill and Casey are both directors in Conning's Risk Solutions unit, the group that will be responsible for generating these new scenarios. Bill is a CFA charterholder who helps clients use Conning's software to make better-informed risk and capital management decisions, and Casey manages our scenario file delivery service.

Today's episode will be about the updates made to the GEMS® model parameters to generate the new NAIC GOES scenario set each month. So let's start at the beginning. Casey, what economic and market data are required for the monthly production cycle?

SEGMENT 2—DATA AND CALIBRATION (1:11)

[Casey Pursley] The first things we gather are the U.S. Treasury curve, the equity price levels and monthly dividends, and the corporate bond coupon curves. For the Treasury data, we simply download this from the treasury.gov website after the daily Treasury yield is available. We source the equity data, which is simply the index level and the dividend yield, from Bloomberg for these indices: the S&P 500 index—that's our large cap reference—the S&P mid cap index, the Russell 2000 index—that's our small cap reference—and NASDAQ 100, our aggressive U.S. equity asset class. The corporate yield data is from S&P Global Market Intelligence. They construct corporate yield curves for the AAA, AA, A, BBB and BB qualities.

A side note to our GEMS clients, this is different than Conning standard Expert View calibration.

Bill, would you like to speak to the model calibration that occurs after this data is available?

[Bill Pauling] Sure. First, let's revisit some key points from the earlier podcast that talked about the Treasury model. The first point is that GEMS doesn't directly model these Treasury yields. Instead, it models three state variables and then uses the model parameters—the vega, kappa, sigma, and lambda parameters—to convert these into yields from the state variables. Those yields are continuously compounded spot rates, because the affine functions for the conversion converts these into linear functions. If we select any three points on the initial treasury curve, we have three linear equations with three unknowns which can be easily solved using simple matrix algebra.

[CP] But the data we're pulling from treasury.gov are par yields.

[Bill Pauling] Right. So, first we have to convert those par yields to spot rates, and to do that we strip the par curve to find the equivalent spot rate curve. This process is actually handled by our recalibration tool.

[JG] And remind me, which three points do we use for the initial Treasury fitting?

[BP] Well, those listening who are familiar with GEMS may be thinking, well, it's the three points that give the best fit to the overall observed yield curve. However, after much discussion, the NAIC GOES committee decided that the GOES scenarios would give extra weight to the long end of the yield curve, and that's because the long end of the curve is more important to life insurance and the insurance results. So for that reason, GOES will always use the one month, the five-year, and the thirty-year maturities. And when it comes to the Treasury curve, the GOES recalibration is really just an initial yield curve fitting exercise. There's going to be no change to the model parameters in any of these monthly updates.

[CP] And this will be well documented. We're preparing a new document currently titled *Initial Treasury Yield Fitting Process* that will be available on the naic.conning.com/scenariofiles website together with a spreadsheet example that includes all of the relevant calculations.

Also, with each of the GOES scenario set deliveries, we're now posting an initial treasury fitting and state variables document that users can review each month. Bill, tell us about the corporate recalibration.

[BP] Actually, the fitting of the initial Treasury yield curve and the corporate yield curves are going to be done together at the same step, at the same time, using our recalibration tool. This will ensure that both the Treasury curve and the corporate curves are fit consistently.

[JG] Thanks, Bill. Let's discuss the equity model parameters now. These won't change from month to month, will they?

[BP] The GOES equity model has been calibrated to align with the NAIC stylized facts and acceptance criteria, so the resulting parameters will stay fixed. The only updates from one month to the next will be to the initial price level and the dividend values. The initial prices don't in any way impact the published basic data set. We update these in our model just so that we or our software clients who want to query the index level or other related simulated variables from the output file will have those available to them. However, the initial dividend yields do impact the basic data set.

[CP] Bill, let me interrupt you to say that one of the most popular questions we've received, as more insurers are working through these published scenario sets, is, why are the equity results changing from month to month now that we've delinked the equity model from the Treasury model?

[BP] Yeah, GEMS models price returns and income returns individually, and they're both included as separate series in the Basic Data Set. Income returns will change from one month to the next due to any changes in dividend yields. Price returns can change slightly due to some interaction effects with the dividend yield. Now, since the total returns are the sum of both the price and the income return, we can expect to see some month-to-month changes in total returns driven primarily by changes in dividend yield.

[CP] And I'll add one other detail for our software clients who are hands-on with these models. We do leverage the GEMS User Path functionality to produce the deterministic SERT scenarios, and our experienced GEMS users will know that this User Path input requires equity price levels. So that's another application of the equity initial price in the monthly update process.

SEGMENT 3—GOES SCENARIO FILE DELIVERY (7:53)

[JG] OK, thanks. Before we wrap up, Casey, can you give us an update on where we are with the GOES scenario file deliveries?

[CP] We're recording this on September 12th, and at this point we've published scenario sets for year-end 2024 plus Q1 and Q2 of 2025. Beginning in a couple of weeks on September 30th, we start our real-time deliveries. This means that Conning will update the initial conditions as we've discussed in this episode, and we're going to run the model overnight. We'll deliver the results to the NAIC the morning of October 1, and when the files are reviewed and accepted by the NAIC, they'll be published to the public website. Our commitment to the NAIC—to the industry—is to publish by 5:00 PM Eastern Time or 4:00 PM Central on the first business day of each month. So this means that we all—Conning, the NAIC, the insurers—get three monthly cycles to run through our production processes before the big one at year end.

SEGMENT 4—CLOSING (9:01)

[JG] OK, well, thanks to Casey and Bill for that update and the overview of the monthly update process. As always, if our listeners have any questions, they can send us an e-mail at naicscenarios@conning.com. Now, if our listeners are wondering what happens when changes need to be made to these calibrations or any other significant aspect of the GOES model, be sure to tune into our next episode for an overview of the NAIC GOES model governance. Until then, thanks for listening and keep on modeling!

About Conning

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