

The Growth-at-Risk Approach to Assessing Global Financial Stability

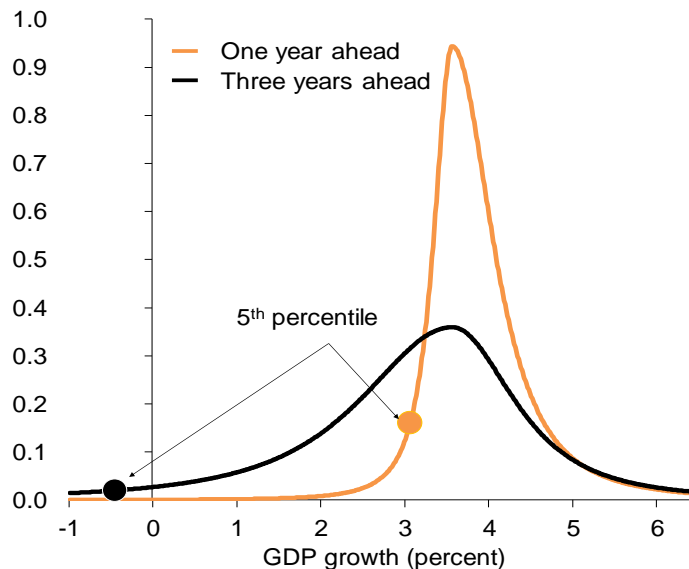
By Tobias Adrian

The analysis presented in the April 2018 *Global Financial Stability Report* (GFSR) is based on the new “Growth-at-Risk” approach developed in one of the analytical chapters of the October 2017 [GFSR](#).

What is the Growth-at-Risk (GaR) approach?

- The GaR links current financial conditions to the distribution of future growth outcomes. An important advantage of this approach is that it allows us to assess whether a tightening or an easing of financial conditions is on net macro-critical, and may therefore put financial stability and future growth at risk. Figure 1 shows the distribution of one-year ahead global growth forecasts (in yellow) and the distribution of three-year ahead global growth forecasts (in black), conditional on current financial conditions. The forecast range of severely adverse outcomes (the 5th percentile, delineated by dots in Figure 1) gives us a metric for assessing growth-at-risk and hence the degree of concern about the current level of financial vulnerabilities. As can be seen in Figure 1, in the severely adverse scenario, global growth one year from now will be about 3 percent or less (potentially not a bad outcome), but could turn negative three years from now.

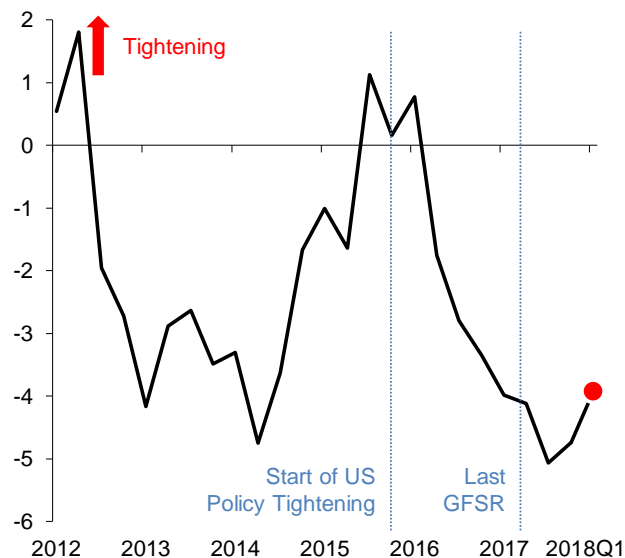
Figure 1: Growth-at-Risk: Global Growth Forecast Densities
(2018Q1, probability)



How do we measure financial conditions?

- Financial conditions are typically characterized by a broad range of indicators, including asset prices and quantities, as well as balance-sheet indicators, such as leverage. These country-specific indicators can be aggregated into Financial Conditions Indices (FCIs) (see October 2017 [GFSR](#)). The FCIs constructed for 20+ major global economies can subsequently be aggregated into a global FCI. Over the past six months, global financial conditions—as measured by the global FCI shown in Figure 2—remained accommodative and supportive of global growth.

Figure 2: Global Financial Conditions Index
(standardized index values)

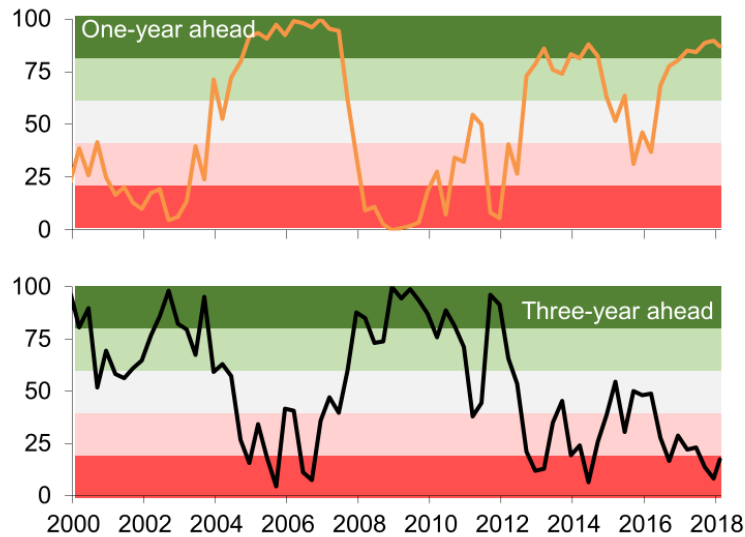


How does the GaR approach work?

- The easing of global financial conditions that we have seen over the recent years (Figure 2) implies shifts in forecast distributions of near-term and medium-term growth outcomes. Thus, we can trace the evolution of severely adverse outcomes (5th percentile shown as dots in Figure 1) over time. Figure 3 shows that compared to a year ago, in a severely adverse scenario, we are now expecting to see higher global growth rates one year from now, but lower growth three-years from now. To judge how bad the currently anticipated severely adverse outcomes might be relative to historical norms, we can compare the model's forecasts across time. The colors in Figure 3 show the ranges of best and worst predictions over past 18 years. It shows, for example, that given current financial conditions, the GaR model predicts a range of severely adverse outcomes for the medium-term that are similar to what it would have predicted before the global financial crisis.

Figure 3: Growth-at-Risk Forecasts

(Lines: 5th percentile forecasts; Colors: percentile rank)



What can the GaR tell about financial vulnerabilities?

- When the loosening of financial conditions is associated with increasingly stretched asset valuations and with rising leverage, the GaR measures the extent to which increased financial vulnerabilities could dampen growth in the future if adverse shocks occur. The financial conditions indicators that feed into the GaR model include a wide range of price-of-risk and leverage metrics for different countries, sectors and asset markets.