Tobias Adrian, Frederico Grinberg, and Sheheryar Malik of the IMF, and Nellie Liang of Brookings

Macroeconomics models and forecasting practices focus on expected mean growth and usually do not model volatility or other higher moment distributions. The authors argue that this can be too narrow when volatility and skewness increase as growth weakens and may lead to systematic underestimation of downside tail risk.

They explore the empirical relationship between financial conditions and the distribution of real GDP growth for 11 advanced economies from 1975 to 2017.

Their objections are twofold. The first is to measure the median and the lower 5th percentile of the distribution of predicted real GDP growth conditional on financial conditions. The latter of which the authors call Growth-at-Risk. The second is to see how GaR changes over a projected horizon of twelve quarters.

By also estimating its term structure, we can evaluate whether higher GaR achieved in the near-term with loose financial conditions is long-lasting and sustainable.

The authors use a model of output growth to model empirically the distribution of future real GDP growth as a function of financial conditions, economic conditions, inflation, and credit growth using panel quantile regression.

They find that the conditional distribution of GDP growth depends on financial conditions, with the conditional growth at the lower 5th percentile more responsive than the median or upper percentiles.

The term structure of GaR features an intertemporal tradeoff: when initial financial conditions are loose, GaR is higher in the short run but lower in the medium run, and the tradeoff is amplified by a credit boom.

The authors find that looser financial conditions in near-term quarters significantly boost expected growth and reduce downside risk for both the 5th percentile and median. The effect declines or subtract from median forecasted cumulative growth in quarters further out, however. They reason that change sin the distribution of GDP growth over the projection horizon reflect changes in the price of risk from financial frictions.

A key result is that GaR conditional on initial loose FCI and a credit boom is significantly higher in the near-term and significantly lower in the medium-term than GaR conditional on average FCI (ie, growth is higher in the near term and lower in the medium-term)

A second key result is that greater downside risk to growth in the medium-term are not counterbalanced by higher expected growth. While expected growth from loose FCI and high credit growth is modestly higher relative to average initial FCI in the near-term, about 0.5 percentage points higher, the difference falls and becomes negative over the projection horizon, while GaR falls much more sharply.

The authors document that the forecasted growth distribution changes with financial condition, a clear violation of a common assumption when estimating macrofinancial models that volatility is independent of growth. This has implications for the models that policymakers base their decisions on because the models tend to assume that growth is not affected by volatility (ie, mean and variance are independent).

The estimated term structure of GaR conditional on loose versus average initial financial conditions supports the intuition of a tradeoff between building greater resilience in normal times in order to reduce downside risks in stress periods.

Big Questions:

Why is the paper important?

What is the big takeaway?

The big takeaway is that there is an endogeneity issue with standard macrofinancial models. There is no “standard” model that incorporates macrofinancial linkages that could be used regularly by policymakers.

General Questions:

What is conditional growth?

What is the term structure of growth-at-risk?

Why is GaR is good metric for financial stability risk?

How do you want GaR to behave ideally?

What is the intertemporal risk tradeoff?

What are macrofinancial linkages?

Do financial conditions affect the distribution of actual GDP growth?