WP/18/180

IMF Working Paper

The Term Structure of Growth-at-Risk

by Tobias Adrian, Federico Grinberg, Nellie Liang, and Sheheryar Malik

INTERNATIONAL MONETARY FUND

 WP/18/180

IMF Working Paper

Monetary and Capital Markets Department

The Term Structure of Growth-at-Risk[1]

Prepared by Tobias Adrian, Federico Grinberg, Nellie Liang, and Sheheryar Malik

August 2018

Abstract

Using panel quantile regressions for 11 advanced and 10 emerging market economies, we show that the conditional distribution of GDP growth depends on financial conditions, with growth-at-risk (GaR)—defined as growth at the lower 5th percentile—more responsive than the median or upper percentiles. In addition, the term structure of GaR features an intertemporal tradeoff: GaR is higher in the short run; but lower in the medium run when initial financial conditions are loose relative to typical levels, and the tradeoff is amplified by a credit boom. This shift in the growth distribution generally is not incorporated when solving dynamic stochastic general equilibrium models with macrofinancial linkages, which suggests downside risks to GDP growth are systematically underestimated.

JEL Classification Numbers: G1, E1, F44

Keywords: downside risk, macrofinancial linkages, volatility paradox, financial stability, quantile regression

Author's E-Mail Address: tadrian@imf.org, fgrinberg@imf.org, jnliang@brookings.edu, smalik2@imf.org

[1] We thank Jie Yu for providing extraordinary research assistance. We also thank Tommaso Mancini Griffoli, Michael Kiley, Andreas Lehnert, Frank Schorfheide, participants at a BIS Research Network conference and an IMF workshop on GDP-at-risk, and other IMF colleagues for helpful comments.

Contents Page

Appendices