Discussion of “Capital Flows at Risk” by Gelos, Gornicka, Koepke, Sahay and Sgherri

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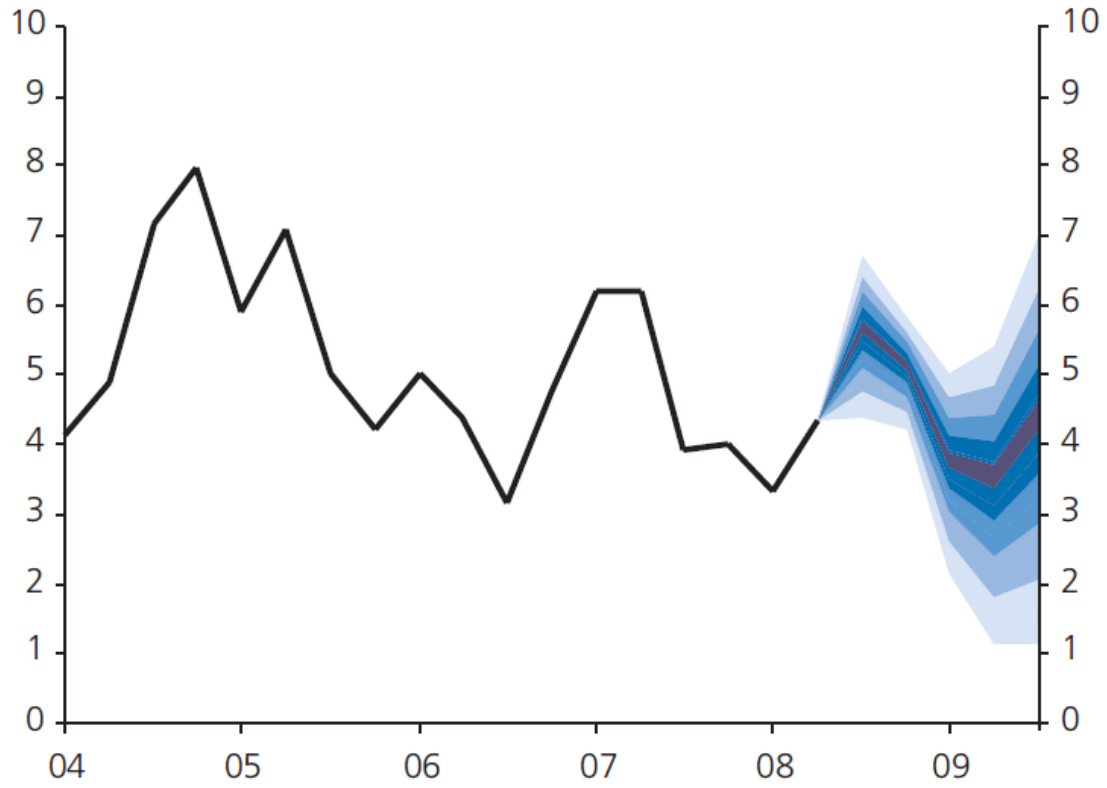
Risk management approach

- "…policymakers need to consider not only the most likely future path for the economy but also the distribution of possible outcomes about that path" (Greenspan, 2003).
- Macroeconomic models and forecasting practices at central banks focus not only on expected growth but also in the full forecast distribution.

Escenarios de crecimiento del PIB trimestral (*)

(variación anual, porcentaje)



Risk management approach

- De Gregorio (2009): “By early 2008, the inflationary situation was still a complex one, but risks had decreased, and inflation was expected to reach its target thanks to the monetary policy actions already implemented, lower world growth and the strengthening of the peso. By March, Bear Stearns had already gone bankrupt and the risk of a higher-stress episode on the world financial markets had increased greatly. Likewise, due to the **risks of a potential sudden stop** if the financial crisis should worsen,…, the Central Bank decided to start accumulating reserves…in April 2008”
- Risk management focus not on the expected path but on the worst possible outcomes.

Objective of the paper

- To predict the entire future probability of capital flows to EMEs based on current local fundamentals, policies and global variables.
- Empirical strategy:
  - The authors use a *quantile regression* analysis to quantify downside and upside risks to future capital flows, conditional on the prevailing global financial conditions and local factors.
  - Quarterly data from 1996Q1 to 2018Q4 for 35 EMEs.
  - Future capital flows are the gross portfolio inflows.

Overview

- Results:
  - Future reversals of capital flows are disproportionately explained by changes in investor risk aversion.
  - Countries with better institutional frameworks do not have higher average inflows but the distribution is more squeezed.
  - Countries with greater exchange rate flexibility and countries using inflation targeting are able to sustain larger median portfolio flows.
- Very interesting and policy relevant paper.

Capital Flows at Risk: the origins

- Authors build on the recent empirical approach developed by Adrian, Boyarchenko and Giannone (2019) (Vulnerable growth).
- Growth at risk framework links macrofinancial conditions to the probability distribution of future real GDP growth.
  - Step 1: selecting macro financial variables and constructing partitions.
  - Step 2: Quantile regression estimation
  - Step 3: Deriving the conditional future growth distributions
  - Assessing the plausibility of baseline and alternative scenarios

Quantile regressions

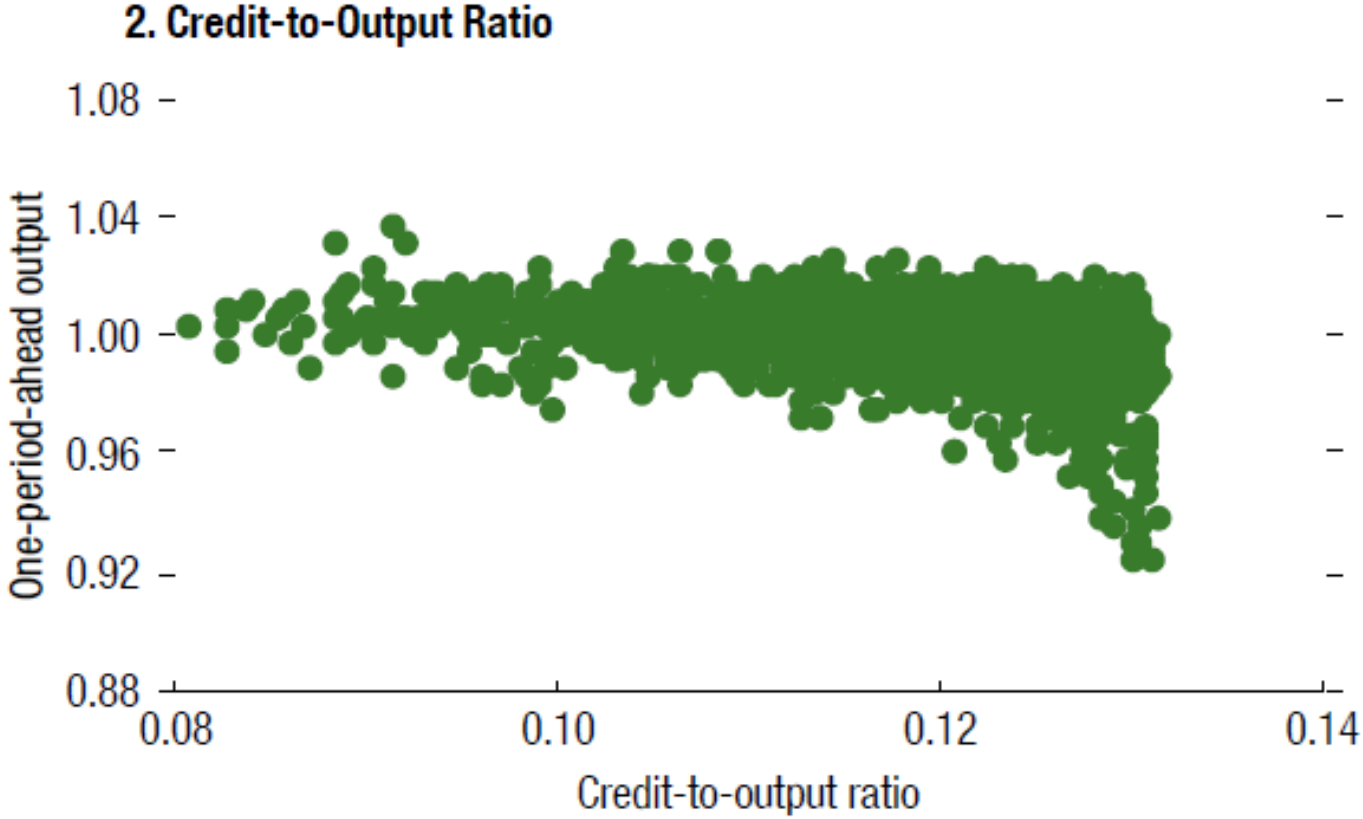
Quantile regressions are used to estimate the potentially nonlinear relationship between selected explanatory variables (such as global financial conditions) and quantiles of the dependent variable (in this case, future capital inflows).

Normally, we are interested in the conditional mean:

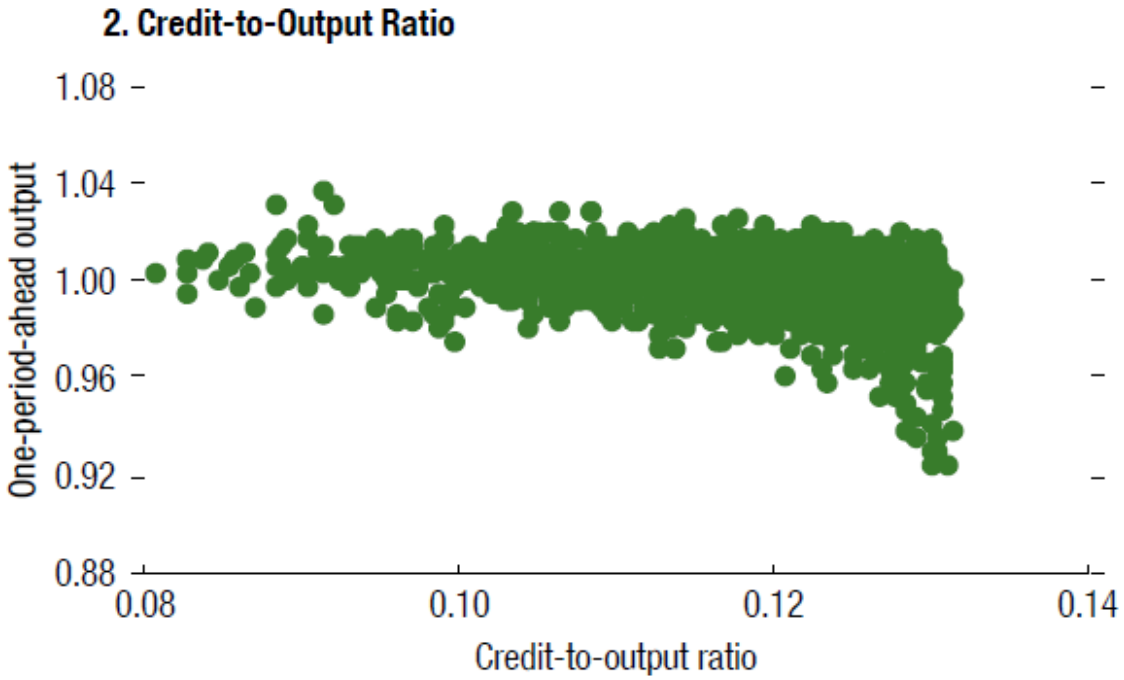
$$E(y/x) = x\beta_m$$

Instead

$$Percentile_\tau(y/x) = x\beta_\tau$$



Source: IMF staff estimates.



Source: IMF staff estimates.

The estimated lower quantiles of the distribution of future GDP growth exhibit strong variation as a function of current financial conditions, while the upper quantiles are stable over time.

General specification

$$\left(\frac{Flows}{GDP}\right)^{\alpha}_{i,t+h|t} = \delta_i^{\alpha} + \beta_1^{\alpha} Global_t + \beta_2^{\alpha} Domestic_{i,t} + \beta_3^{\alpha} PF_{i,t} + \beta_4^{\alpha} Global_t \times PF_{i,t} + \epsilon_{it},$$

Push factors (Global): BBB yield and spread, US sovereign 10-year yield, US GDP growth, a commodity price index, an US dollar strength index.

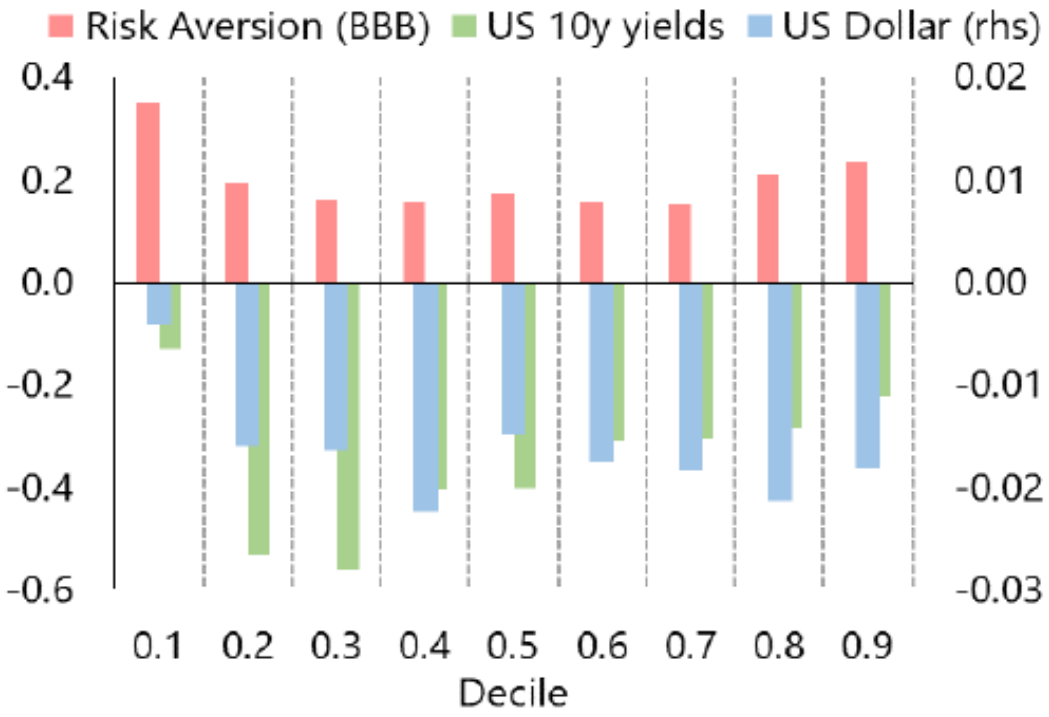
Pull drivers (Domestic): financial development, integration with global financial markets, capital account openness, GDP per capita, short-term external debt to FX reserves, and cyclical factors (domestic GDP growth).

Policy frameworks (PF): FX interventions, capital management policies, macroprudential policies, monetary policy, and structural characteristics such as inflation targeting regime, exchange rate flexibility, and quality of institutions.

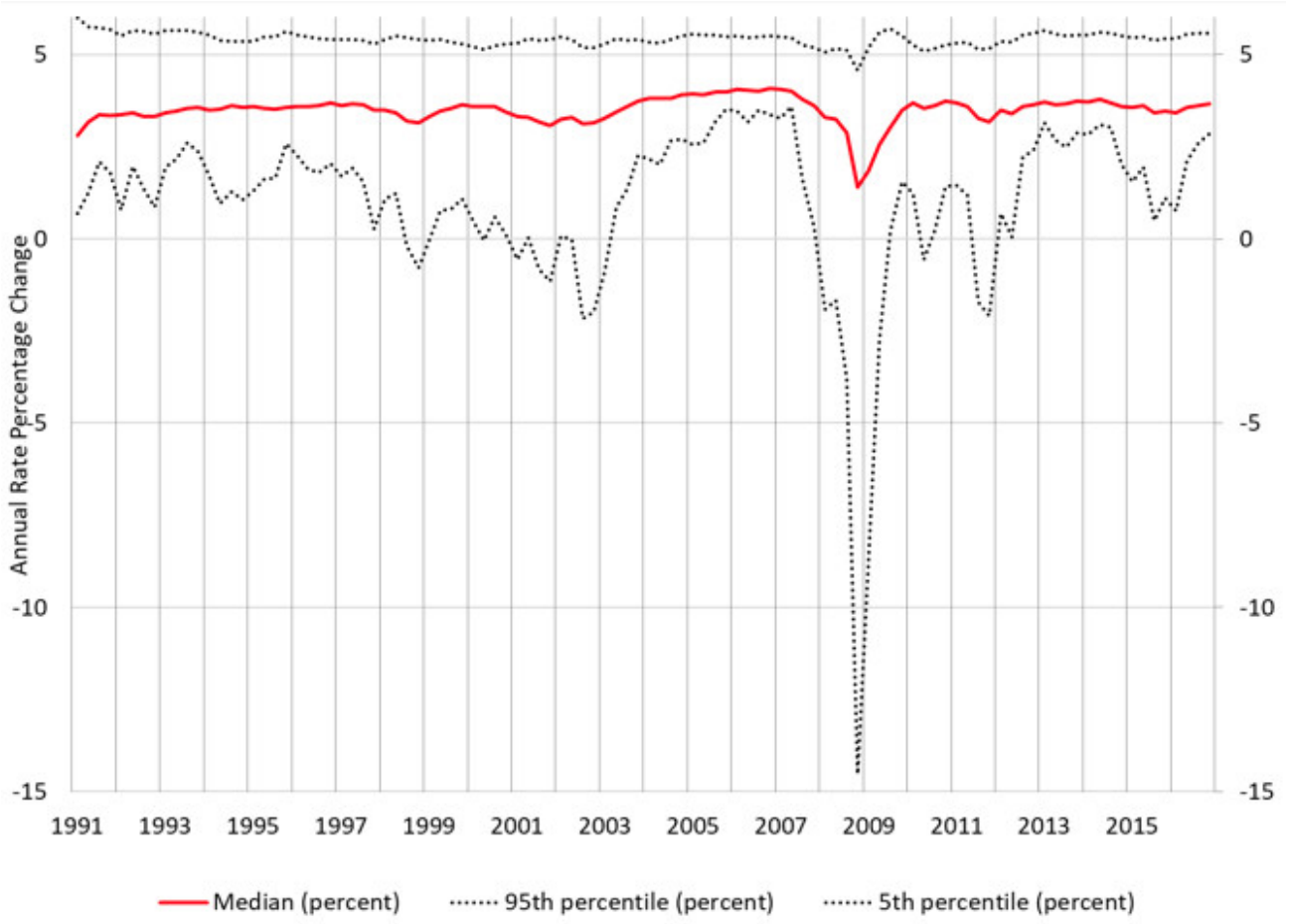
- Many of the variables appear relevant for explaining capital inflow dynamics but they tend to co-move. Using partitions to extract common trends?…

Are the estimated slopes of the quantile regressions significantly different from the OLS slopes?

Figure 2: Estimated Coefficients by Quantile

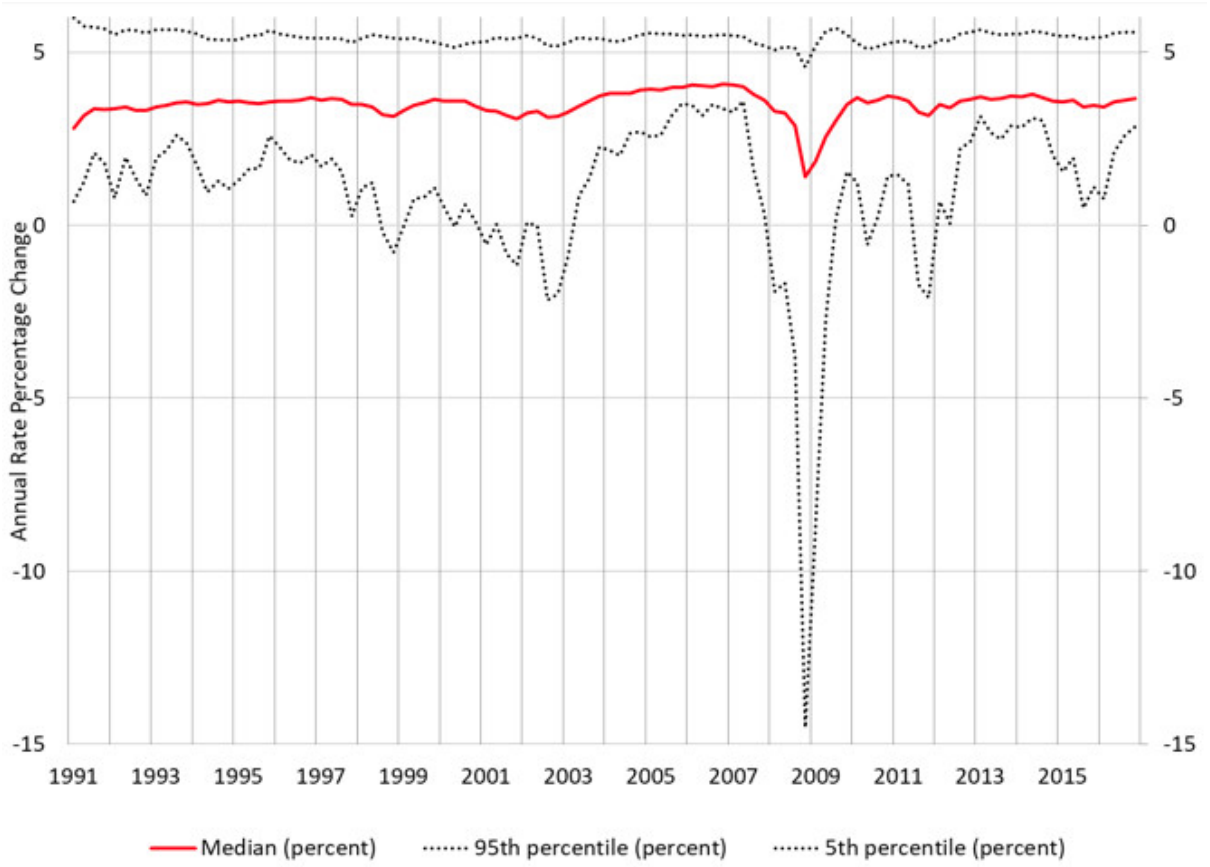


One-year-ahead density forecast for global growth, 1991-2016, USA: the asymmetry of the business cycle



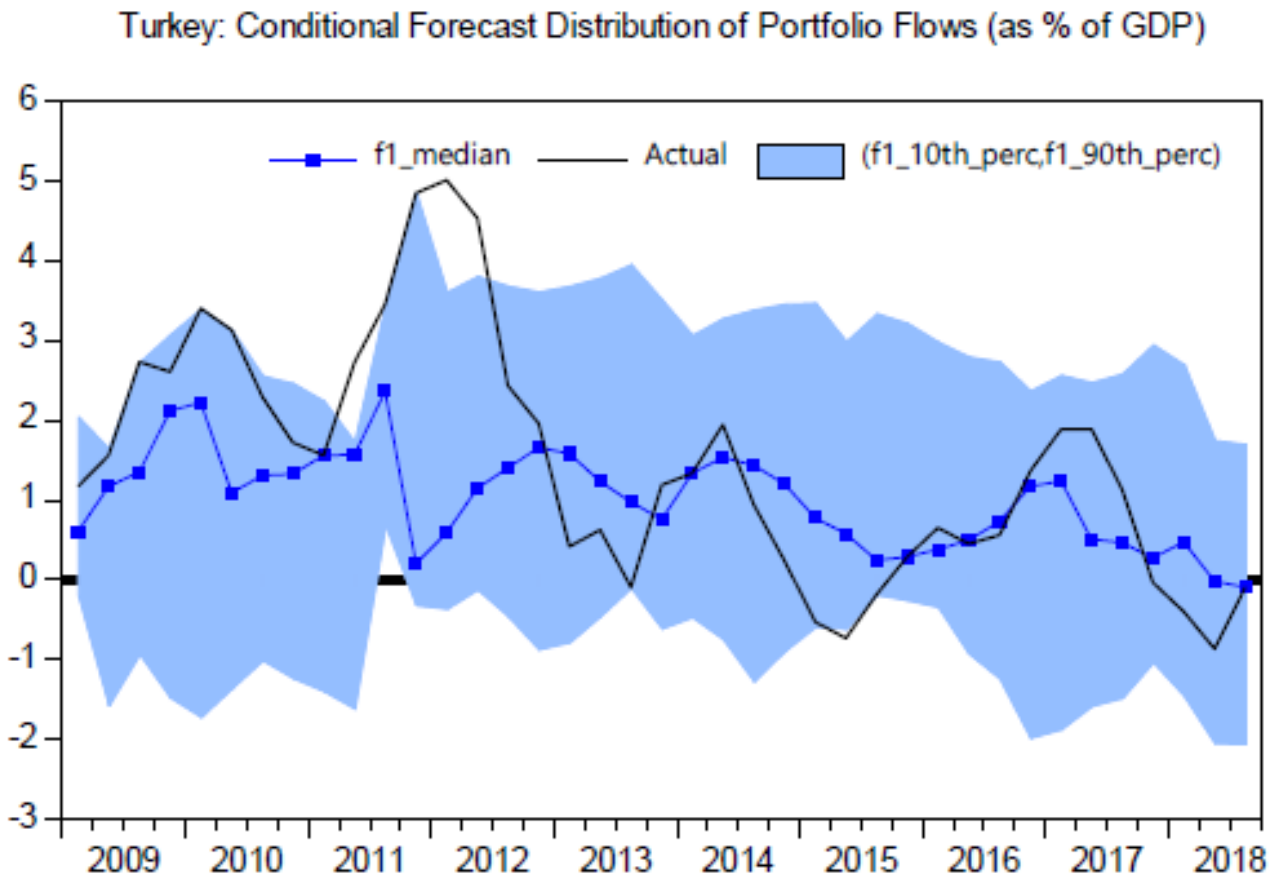
After the quantile regression estimation, the conditional distribution of future GDP growth is derived by fitting a t-skew distribution to predicted values of the estimated conditional quantiles regressions.

One-year-ahead density forecast for global growth, 1991-2016, USA: the asymmetry of the business cycle



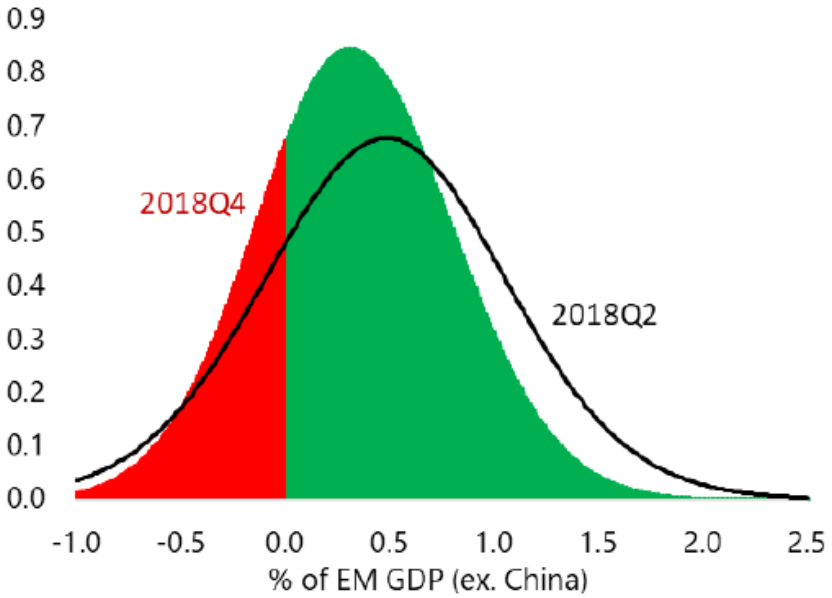
Recessions are associated with left-skewed distributions while, during expansions, the conditional distribution is closer to being symmetric.

The symmetry of capital inflows?



Capital inflows at risk…

Figure 3: Conditional Densities for Portfolio Debt Flows in the Medium Term



Source: Bloomberg LP, and IMF Staff Estimates

Most of the action seems to be related to the median, not to the distribution becoming left-skewed.

Capital inflows at risk…

- Explanation for symmetric distribution over time?
  - Interaction between business cycle and international capital flows.
  - Kaminsky, Reinhart and Vegh (2005): capital flow cycle is tied to the business cycle.
    - Countercyclical capital inflows: the economy borrows abroad in bad times and lends/repay in good times.
    - Procyclical capital inflows: the economy borrows from abroad in good times and lends/repay in bad times.
  - Portfolio flows as a percentage of GDP may generate some problems to identify “capital inflows at risk” if capital flows are procyclical. In good times, capital inflows increase and GDP also increases. In bad times, capital inflows fall and GDP also falls.
  - Try additional capital inflows measures (US dollars or normalize by a different variable). This can help to understand the distribution of GDP growth in EMEs (transmission mechanism).

Capital inflows at risk…

The concept of capital inflows at risk.

- What does it mean capital inflows/GDP below certain threshold?
- Growth at risk. Probability of recession…
- Type of shocks hitting the economy
- Changes in vulnerabilities

Reasons to worry about the distribution:

- Magud, Reinhart and Rogoff (2011) classify the motives eliciting action against capital flows into four fears: fear of appreciation, fear of “hot money”, fear of large inflows (and the asset price bubbles they can entail), and fear of loss of monetary authority.

Capital inflows at risk…

Capital inflows at risk: Should be worry about the whole distribution or about extreme events?

Policymakers probably tend to have in mind current account reversals and sudden stops when thinking about worst possible scenarios.

Understanding capital inflows at risk and its connection with sudden stops may be very useful from policy perspectives.