Bank of Russia

HOW DO FINANCIAL VULNERABILITIES AND BANK RESILIENCE AFFECT MEDIUM-TERM MACROECONOMIC TAIL RISK?

Discussion by Elena Deryugina and Alexey Ponomarenko

What this paper does

- Compiles a set of country-level TCE ratios

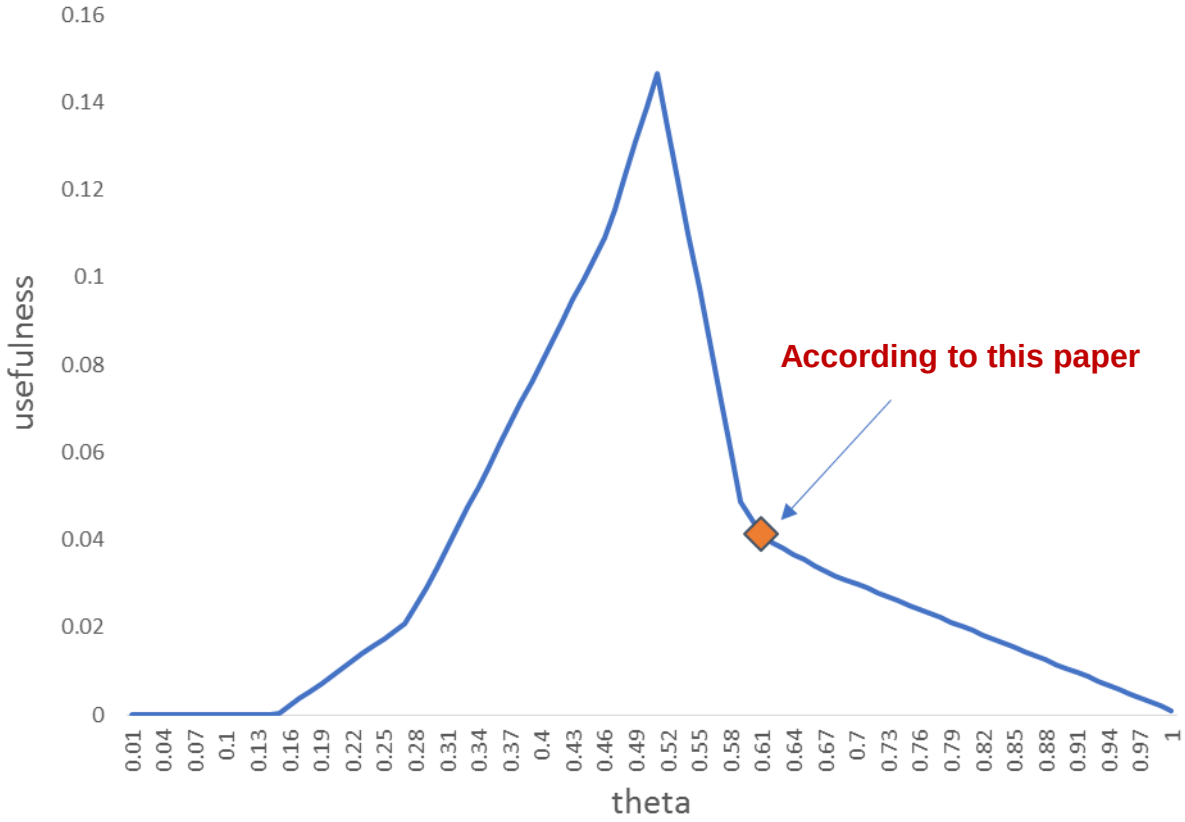
- Estimates a panel quantile LPM and reports the impact of changes in TCE ratio (as well as other financial variables) on different quantiles of projected GDP growth

What this paper concludes

Higher capital ratios tend to be associated with a weaker central outlook for growth over a 1-2 year horizon, but are also associated with less severe tail risks 3-to-5 years ahead.

The results may be used in the cost-benefit analysis of macroprudential tools and early warning systems

Absolute usefulness of credit gaps in predicting financial crises under different Type I/II errors' weights

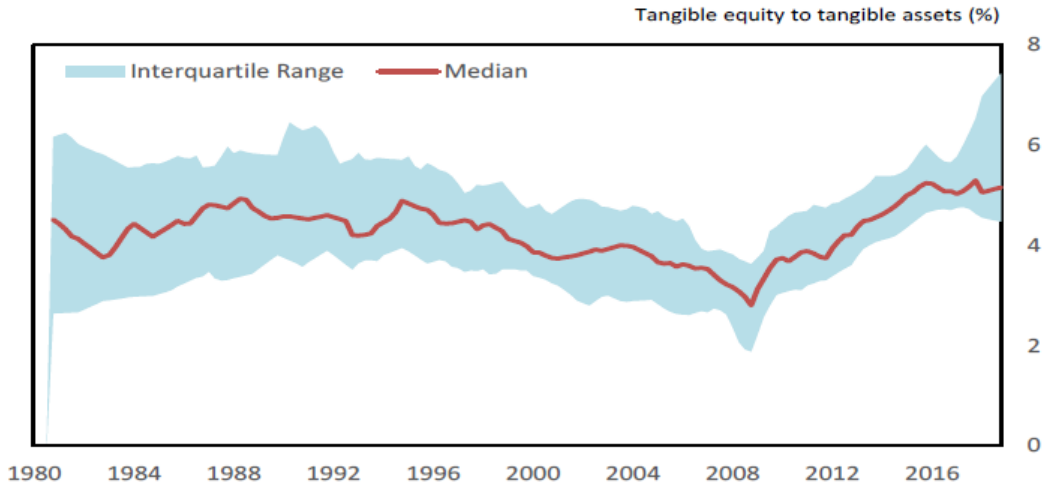


$$L=\theta FN/(TP+FN)+(1-\theta)FP/(FP+TN)$$

$$\text{Usefulness} = \min[\theta, 1-\theta] - L$$

Is there sufficient variation of the capital ratio variable?

(c) Capital Ratio



Is the macroeconomic effect associated with an increase of the observed capital ratio a good proxy for the effect associated with an increase of required capital ratio?

Are higher capital ratios associated with higher credit spreads?

Does the quantile approach has a potential beyond the costs-benefits identification?

Comparison of the out-of-sample forecasts' RMSEs over the cross-section of 21 countries

- 4-variable (GDP, CPI, interest rate and "excess credit") **quantile LPM**

- **Benchmark regression**

$$y_{i,t+h} = \alpha + \beta' X_{i,t} + \gamma_1 D_{i,t} + \gamma_2 D_{i,t} * ec_{i,t} + \varepsilon_{i,t}$$

$y_{i,t+h}$ – average annualized growth rate of real GDP over *h* horizons,
$D_{i,t}$ - crisis dummy-variable
$ec_{i,t}$- excess credit variable.

- **Benchmark probit model**

$$Prob\left(C_{i,t} = 1 \middle| X_{i,t-h}\right) = \Phi(\alpha + \beta' X_{i,t-h})$$

Φ – cumulative normal distribution, $X_{i,t}$– explanatory variables for country *i* at time *t, h* – different horizons in quarters, *C* – binary crisis variable.

Comparison of the out-of-sample forecasts over the cross-section of 21 countries

GDP growth

(quantile LPM's RMSE as ratio to the benchmark RMSE)

	Horizon (quarters)			
Time sample	1	2	4	8
All observation	1.02	1.03	1.03	1.02
Crisis only	1.03	1.08	1.11	1.04

Crisis probability (AUC)

Probit model	0.71
Quantile LPM	0.69