Dampening Global Financial Shocks in Emerging Markets: Can Macroprudential Policies Help?

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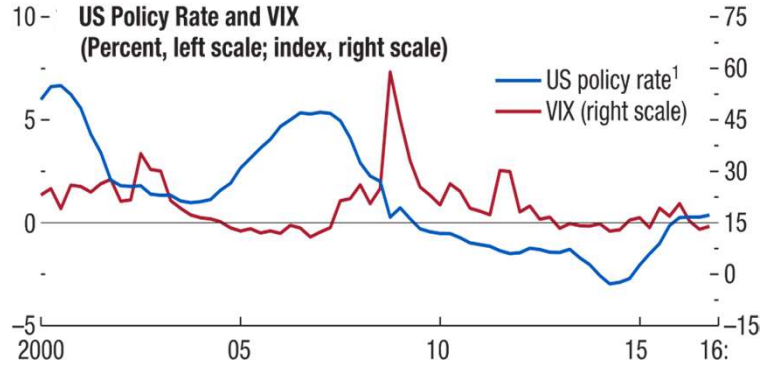
Introduction and research questions

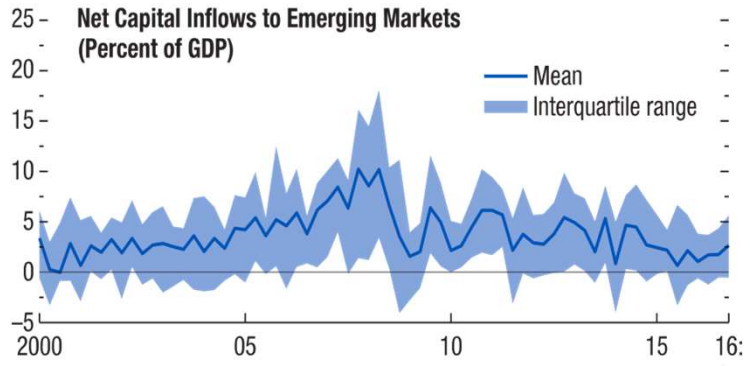
- Global financial shocks can severely affect emerging markets (EMs)

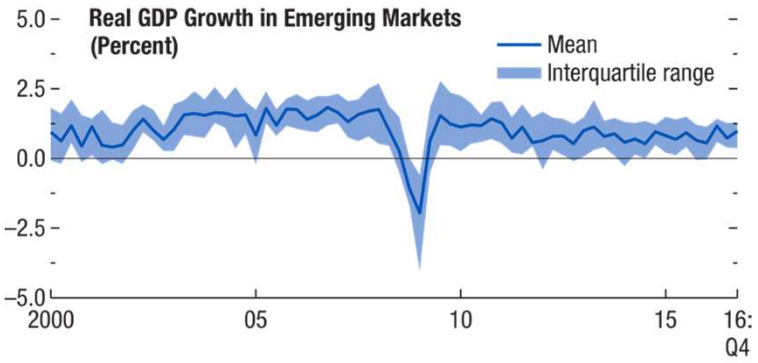
  Rey, 2013, 2016; Dedola et al., 2017; Choi et al., 2017; Iacoviello and Navarro, 2019; Bräuning and Ivashina, 2019; Miranda-Agrippino and Rey, 2019; Vicondoa, 2019; and Kalemli-Özcan, 2019

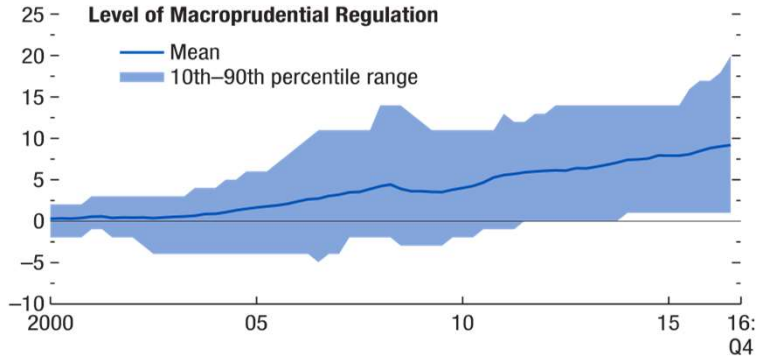
- Exchange rate flexibility alone appears insufficient, prompting calls for additional tools
- Can macroprudential policy measures (MPMs) help EMs to cushion global financial shocks?
- The chapter addresses the following issues
  - » Can MPMs buffer the effects of global financial shocks on GDP growth?
  - » Can MPMs enhance monetary independence?
  - » Can MPMs entail other side effects, such as cross-country spill-overs on other EMs?

Global financial conditions and EMs









Sources: Haver Analytics, IMF, Balance of Payments and International Investment Position Statistics; IMF, International Financial Statistics; Wu and Xia (2015); IMF, integrated Macroprudential Policy (iMaPP) database; and IMF staff calculations.

Note: VIX = Chicago Board Options Exchange Volatility Index. The level of macroprudential regulation is the cumulation of net tightenings since 1990, the first year in the iMaPP data.

[1] The US policy rate is the federal funds rate except during the zero lower bounds period, which uses the implied rate from Wu and Xia (2015).

1. CAN MPMs BUFFER THE EFFECTS OF GLOBAL FINANCIAL SHOCKS ON GDP GROWTH?

GDP growth, global financial shocks, and MPMs

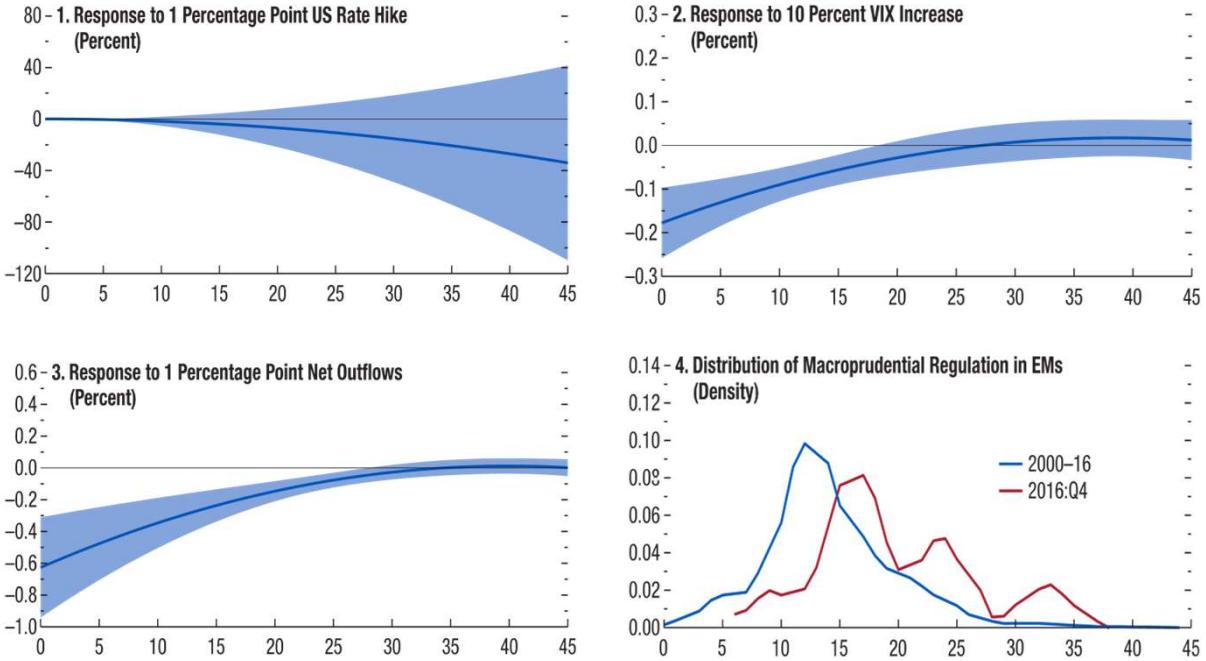
$$Y_{i,t} = \alpha_i + \beta \cdot S_{i,t} + \gamma \cdot \left(S_{i,t} * MPM_{i,t}\right) + \delta \cdot \left(S_{i,t} * MPM_{i,t}^2\right) + \zeta MPM_{i,t} + \theta MPM_{i,t}^2 + \kappa \cdot C_{i,t} + \varepsilon_{i,t}$$

- $Y_{i,t}$ is the quarterly growth rate of real GDP
- α_i are country fixed effects
- $S_{i,t}$ is a vector of global financial shocks : US rates, VIX, net capital outflows instrumented
- $MPM_{i,t}$ is the level of macroprudential regulation
  - obtained by cumulating tightening/loosening in the iMaPP database
  - level of MPMs much less volatile than GDP growth, alleviating concerns of reverse causality
- $C_{i,t}$ is a vector of controls (lagged GDP growth, institutional quality, commodity TOT, etc.)
- Sample includes 38 EMs with quarterly data during 2000-2016
- Framework mimics Obstfeld et al. (2019)

Buffering properties of MPMs on GDP growth

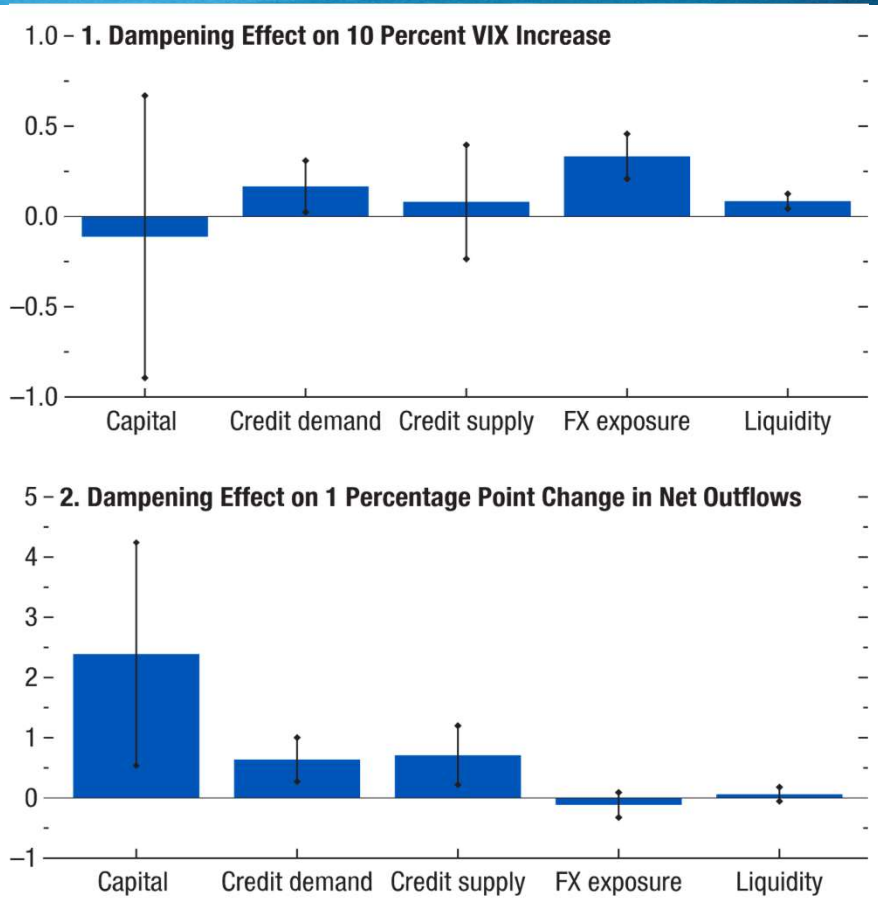
- Tighter MPMs buffer the impact of VIX and capital flow shocks
  - ➢ Buffering effects display decreasing marginal returns

$$\partial Y_{i,t}/\partial S_{j,t} = \beta + \gamma_j MPM_{i,t} + \delta_j \, MPM_{i,t}^2$$



Note: Panels 1-3 show the GDP response to global financial shocks for different levels of macroprudential regulation, panel 4 shows the corresponding probability density function. The shaded areas correspond to 90 percent confidence intervals computed with Driscoll-Kraay standard errors.

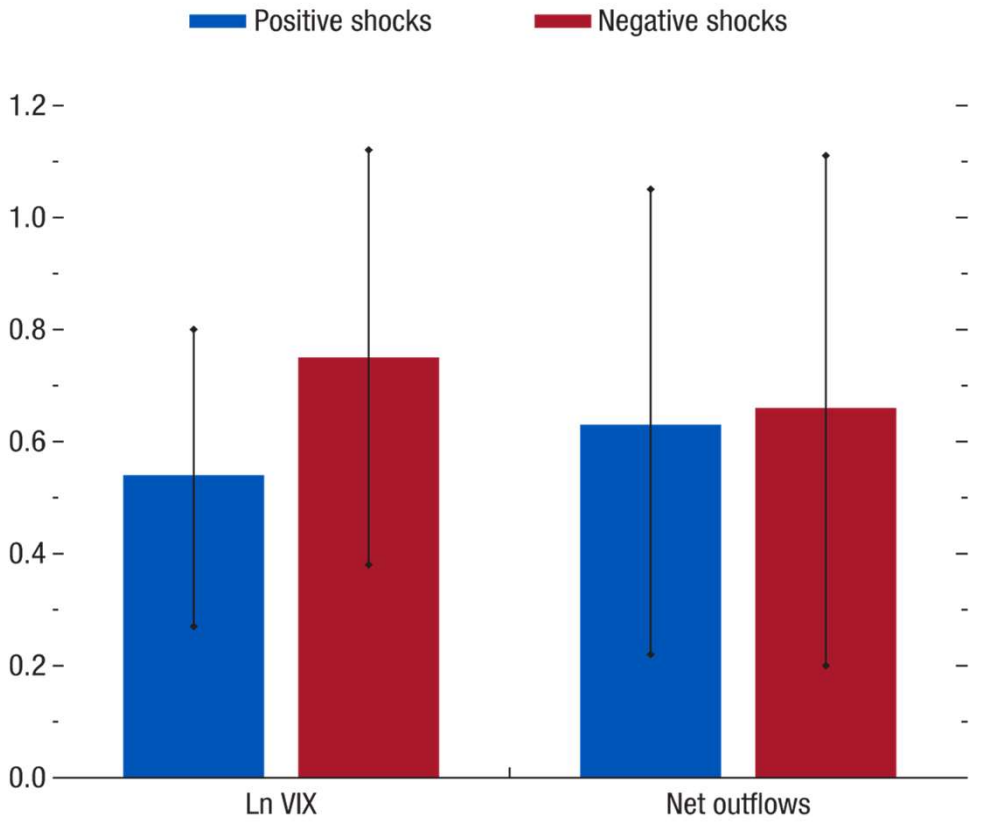
Is the effect driven by specific MPMs?



Note: The bars show the point estimate for the coefficient on the interaction term between the shock and the level of macroprudential regulation. The vertical lines correspond to 90 percent confidence intervals.

- **No.** A broad range of macroprudential measures contribute to dampening effects of global financial shocks.

Is the effect symmetric?



Note: The blue (red) bars show the point estimate for the coefficient on the triple interaction term between the shock, the level of macroprudential regulation, and a dummy the identifies positive (negative) shocks, respectively. The vertical lines correspond to 90 percent confidence intervals. The vertical lines correspond to 90 percent confidence intervals.

- **Yes.** Macroprudential regulation dampens the effects of both positive and negative global financial shocks.

2. CAN MPMs ENHANCE MONETARY INDEPENDENCE?

Monetary policy and global financial shocks

- According to the trilemma, countries with open capital account should retain monetary independence if they have flex ER

- However, even EMs with flex ER tend to hike rates when global financial condition tighten, displaying pro-cyclical monetary policy response
  Calvo and Reinhart, 2002; Obstfeld et al., 2005; Obstfeld, 2015; Han and Wei, 2018; Cavallino and Sandri, 2018; Aizenman et al. (2017).

- Can MPMs allow for a more countercyclical monetary policy response?

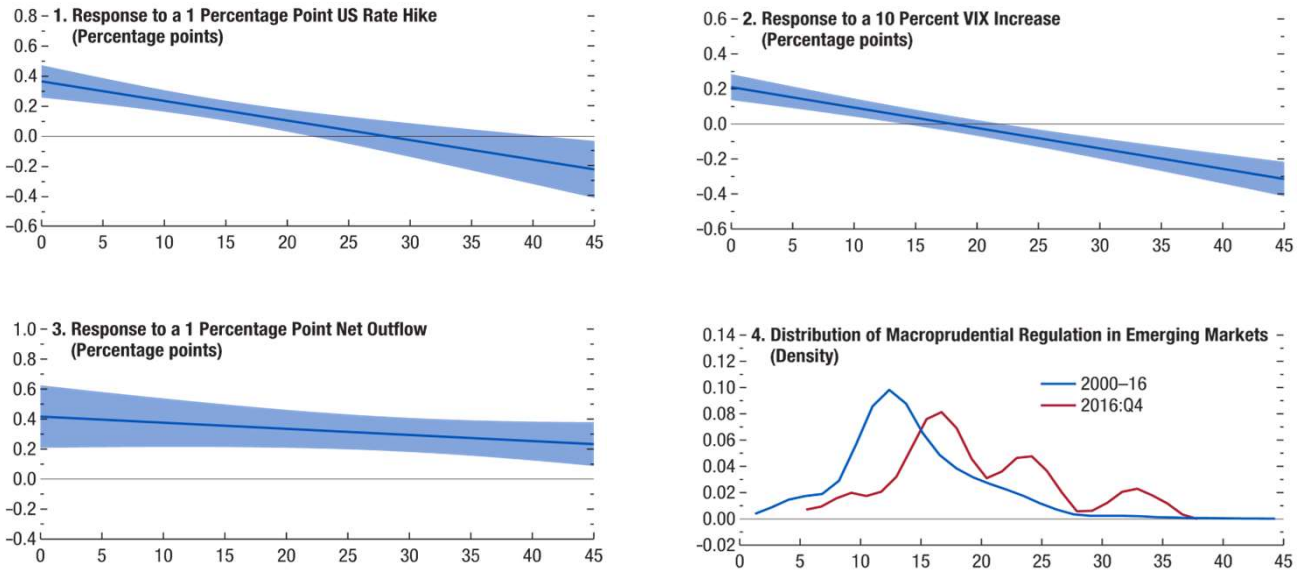
$$I_{i,t} = \alpha_i + \beta \cdot S_{i,t} + \gamma \cdot \left(S_{i,t} * MPM_{i,t}\right) + \zeta MPM_{i,t} + \kappa \cdot C_{i,t} + \varepsilon_{i,t}$$

  - $I_{i,t}$ is the policy rate in EMs
  - $C_{i,t}$ is a vector of Taylor-rule controls
  - sample excludes countries with fixed exchange rate

Policy rate responses to global financial shocks

- A higher level of MPMs allows for a more countercyclical monetary policy response

$$\partial I_{i,t}/\partial S_{j,t} = \beta + \gamma_j MPM_{i,t}$$



Source: IMF staff calculations.
Note: The *x*-axis denotes the level of macroprudential regulation. Panels 1-3 show the estimated policy rate response to global financial shocks for different levels of macroprudential regulation; panel 4 shows the probability density function of macroprudential regulation in the sample. The coefficients on the interaction terms between the shock and macroprudential regulation are statistically significant in panel 1 and panel 2, but not in panel 3. The shaded areas correspond to 90 percent confidence intervals computed with Driscoll-Kraay standard errors. VIX=Chicago Board Options Exchange Volatility Index.

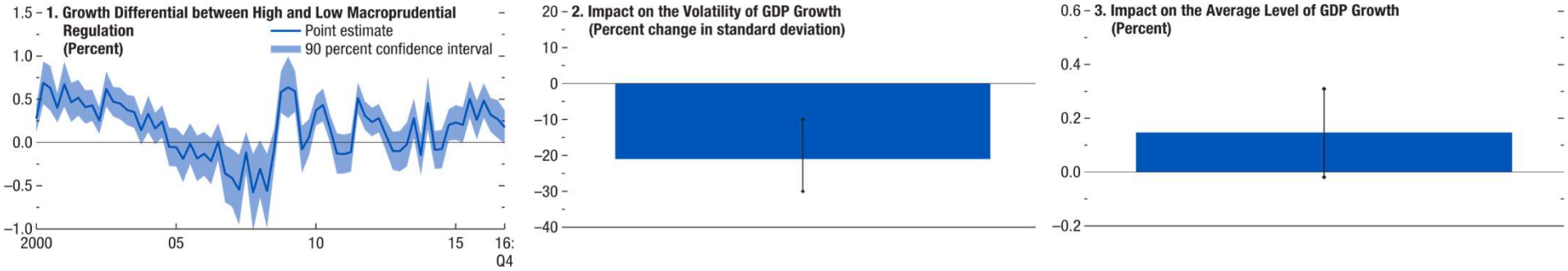
3. ARE THERE SIDE-EFFECTS OF MACROPRUDENTIAL REGULATION ON AVERAGE GROWTH OR VIA CROSS-COUNTRY SPILLOVERS?

Possible side effects – Effect on average growth

- We evaluate the direct impact of MPMs on average GDP growth

$$\partial Y_{i,t}/\partial MPM_{i,t} = \zeta + \gamma \cdot S_{i,t} + 2\theta MPM_{i,t} + 2\delta \cdot \left(S_{i,t} * MPM_{i,t}\right)$$

- We compare GDP growth outcome with high and low MPMs (25 v 75 percentiles)
- During 2000-16, a higher level of MPMs would have
  - considerably reduced GDP volatility
  - without lowering average GDP growth



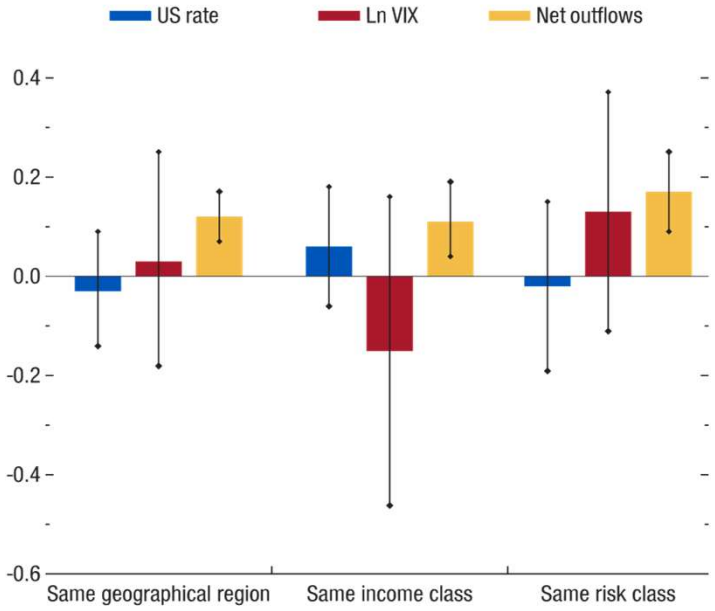
Source: IMF staff calculations.
Note: Panel 1 shows the growth differential between a country with macroprudential regulation set at the 75th percentile of the sample distribution and one with macroprudential regulation set at the 25th percentile; panel 2 shows the point estimate of the impact of macroprudential regulation on the volatility of GDP growth; and panel 3 shows the impact of macroprudential regulation on average GDP growth. The vertical lines correspond to 90 percent confidence intervals computed with Driscoll-Kraay standard errors.

Possible side effects – Cross-country spillovers

- We investigate cross-country spillovers by extending regression specification

$$Y_{i,t} = \cdots + \gamma \cdot \left(S_{i,t} * MPM_{i,t}\right) + \bar{\gamma} \cdot \left(S_{i,t} * \overline{MPM}_{i,t}\right) + \bar{\zeta}\, \overline{MPM}_{i,t} + \cdots$$

- No spillovers found on for US rates and VIX, but positive spillovers found for net outflows



Source: IMF staff calculations.
Note: The bars show the point estimate of the coefficient, and the vertical lines correspond to 90 percent confidence intervals computed with Driscoll-Kraay standard errors; see Online Annex 3.4 for details. VIX = Chicago Board Options Exchange Volatility Index.

Conclusions

1. Can MPMs buffer the effects of global financial shocks on GDP growth?
   - Yes, a tighter level of MPMs can significantly dampen the effect of global financial shocks on GDP growth in EMs
   - However, a tight MPM level also lowers economic activity when global financial conditions are favorable
   - Effects are driven by a broad range of macroprudential measures

2. Can MPMs enhance monetary independence?
   - Yes, MPMs allow for more countercyclical monetary policy response

3. Can MPMs entail side effects on average GDP growth?
   - No evidence of such, but more research is needed

4. Can MPMs entail negative spillovers on other EMs?
   - No evidence of negative spillovers