ARE MACRO-PRUDENTIAL POLICIES EFFECTIVE TOOLS TO REDUCE CREDIT GROWTH IN EMERGING MARKETS?*

F. Pınar Erdem, Etkin Özen , İbrahim Ünalmış
Central Bank of the Republic of Turkey
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* The views are expressed are those of the authors, do not represent views of CBRT

Outline

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- Data
- Methodology
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- Conclusion and Further Work

Motivation I

- After the collapse of Lehman Brothers, quantitative easing policies of AEs' central banks helped to ease external financial conditions for EMEs.
- Despite positive contributions, large capital inflows have created internal and external imbalances in those countries through inflating asset prices and overpricing domestic currency.
- Emerging market CBs have been forced to modify their monetary policy approach to cope with the challenges caused by the excessive capital inflows.
- Macroprudential policies (MPPs) have become a part of the policy toolkit to create a safety net for financial intermediaries to increase their resilience during down turns and restrict the buildup of vulnerabilities
- Average number of MPPs implemented in EMEs was less than 2.5 in 2007, but reached 3.5 in 2014

Motivation II

- The aim of this work is to analyze the effectiveness of **MPPs** on controlling the domestic credit growth during **global liquidity** shocks by taking account the phase of the **credit cycle**
- Limited work on time series behavior of domestic credit growth against MPP implementations

Questions?

- How the phase of the credit cycle change the effectiveness of MPPs?
- Does the number of MPPs in implementation matter?

Literature

- Claessens et al. (2013): LTVs, CG, FC reduce growth in leverage and assets
- Kuttner and Shim (2013) show that tightening debt to income limits reduces housing credit by around 4 to 7 percent, while tightening loan to value limits reduces housing credit by around 1 percent
- For 13 Asian and 33 other economies Zhang and Zoli (2014) find that MPP measures help to curb housing price growth, equity flows, aggregate credit growth and bank leverage
- Using a data set covering 119 countries Cerutti et al (2015) show that MPP are correlated with lower credit growth especially in emerging markets
- Baskaya et al. (2015): Quantity-based domestic MPPs is effective in slowing down total credit growth when the level of the country's financial development relatively low. However, this effect fades away as the level of financial development increases.
- Claessens et al. (2015): Empirically some evidence of impact of MPPs but differentiate by county and individual MPPs.

Data I

- 30 EMEs
- Over 2000-2013
- MPP tools: Global Macroprudential Policy Instruments (GMPI) survey by IMF

1. Time-Varying/Dynamic Loan-Loss Provisioning (DP)
2. Countercyclical Capital Buffer / Requirement (CTC)
3. Leverage Ratio for Banks (LEV)
4. Capital Surcharges on SIFIs (SIFI)
5. Limits on Interbank Exposures (INTER)
6. Concentration Limits (CONC)
7. Limits On Foreign Currency Loans (FC)
8. Reserve Requirements (RR)
9. Limits On Domestic Currency Loans (CG)
10. Levy/Tax on Financial institutions (TAX)
11. Loan-to-Value Ratio (LTV)
12. Debt-to-Income Ratio (DTI)

Financial Institutions

Borrowers

Data II

- Global Liquidity: Yearly % change of cross border banking flows: international claims and total claims (BIS database)
- Credit growth: yearly % change in the domestic credit to private sector, WDI database
- GDP: yearly % change, WEO database
- Credit Cycle
  - CC represents country's credit level dummy of country i at time t
  - 1 for expansion, 0 for contraction (Based on the algorithm introduced by Harding and Pagan (2002))

Methodology I

- To assess the effectiveness of macroprudential polices:

1. Fixed-effect Estimation:

(1)

$$\Delta Credit_{it} = \Delta Credit_{it-1} + \delta \Delta GDP_{it} + \beta_1 \Delta GL_{it} + \beta_2 MPP_{it-1} + \beta_3 CC_{it} + \beta_4 CC_{it} * MPP_{it-1} + \gamma_i + \varepsilon_{it}$$

Methodology II

- To analyze the time series behavior of domestic credit growth against MPP implementations

2. Panel VAR (PVAR) Estimation

$$Z_{it} = \Gamma_0 + \Gamma_0 Z_{it-1} + \tau_i + e_t \qquad (2)$$

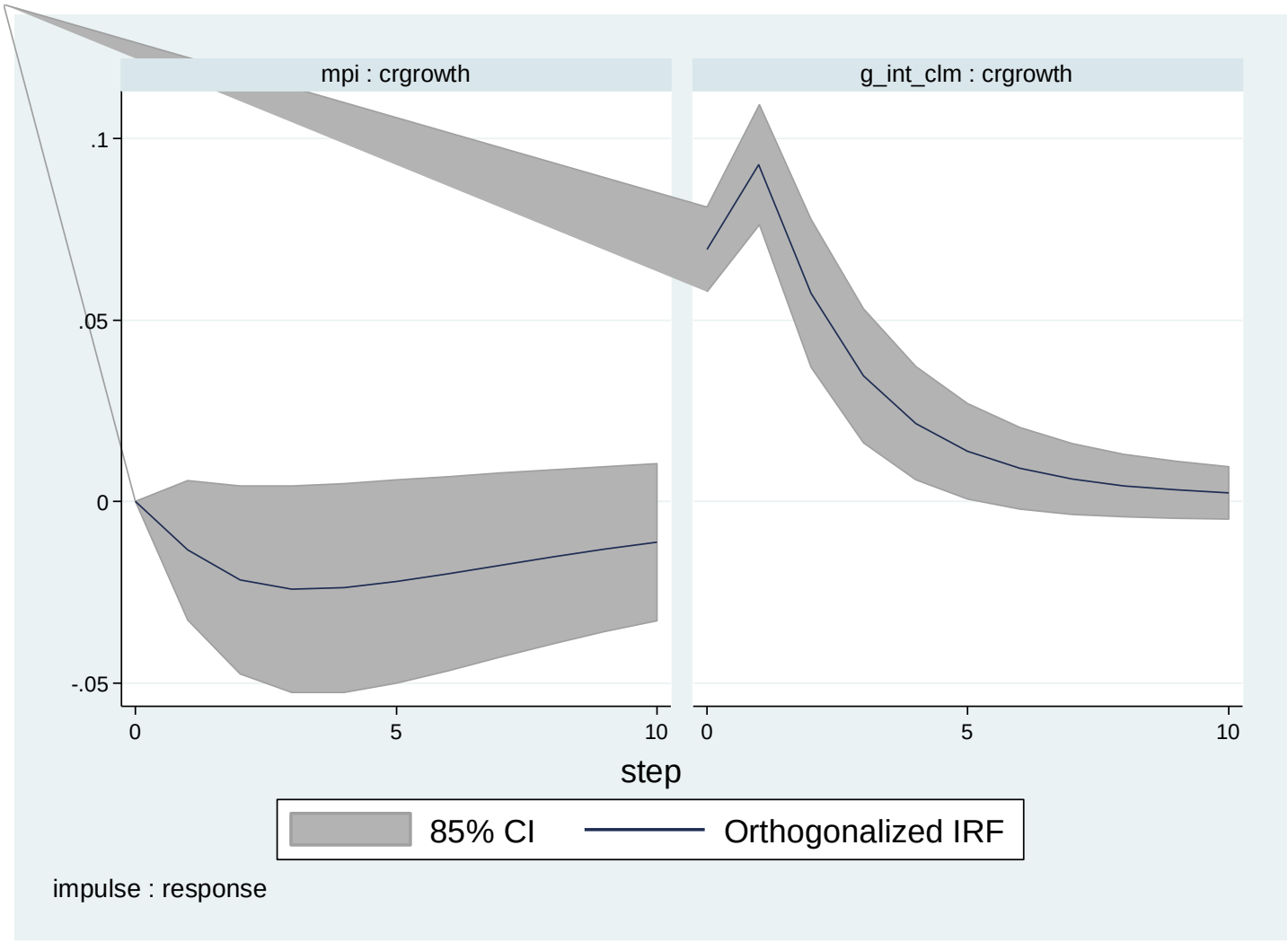
- Z is four variable vector {ΔGL ΔCredit MPP ΔGDP}
- Abrigo and Love's (2005) approach GMM estimation
- Cholesky Ordering
- Lag=1
- Two cases:
  - Case 1: No control for expansion phase of credits
  - Case 2: During expansion of credit cycle (CC=1)

Results I: FE Estimation

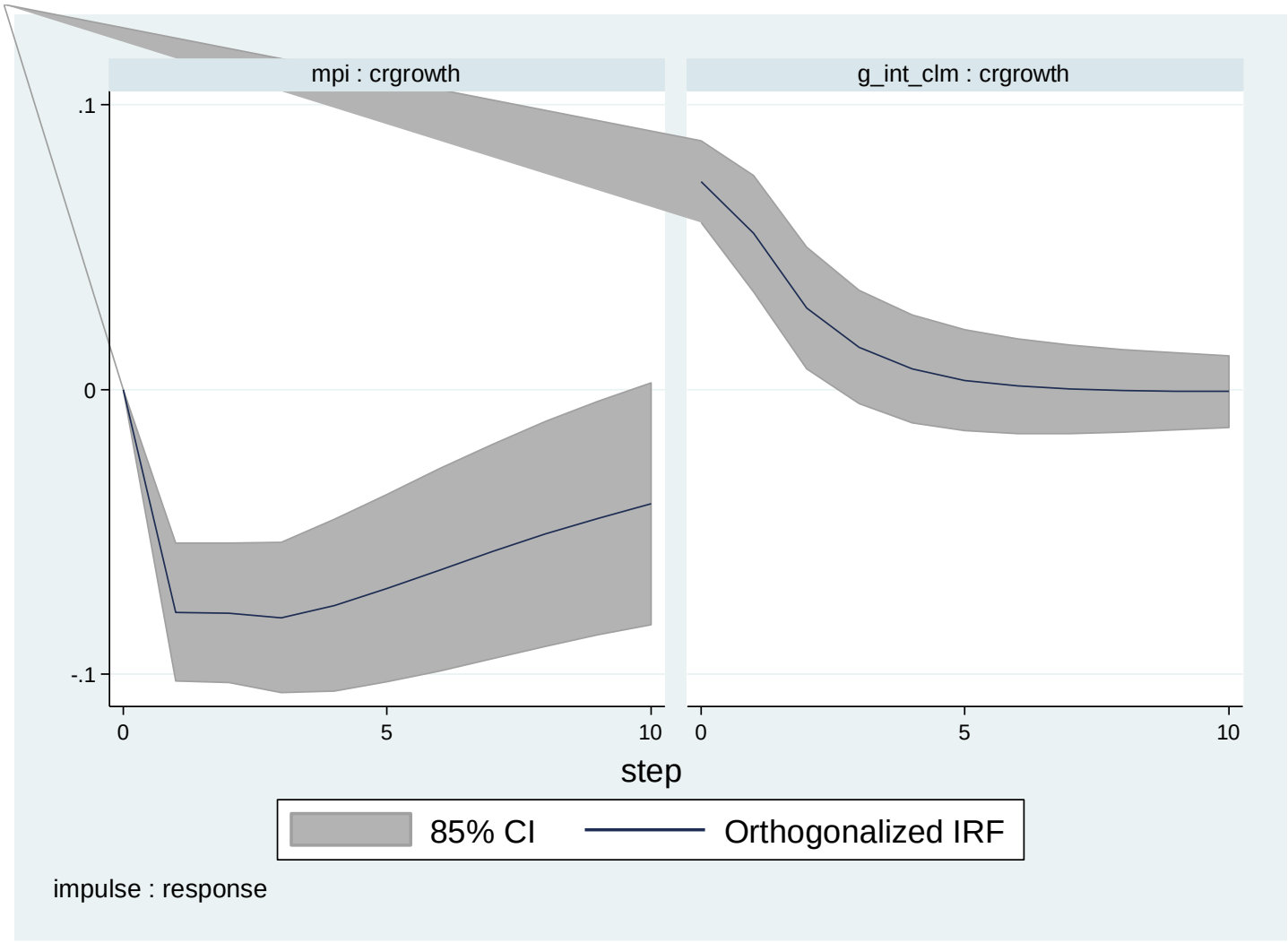
VARIABLES	(2) Credit Growth	(3) Credit Growth
$\Delta Credit_{it-1}$	0.237**	0.238**
	[0.027]	[0.026]
ΔGDP_{it}	0.016**	0.016**
	[0.003]	[0.003]
MPP_{it-1}	-0.018*	-0.017*
	[0.009]	[0.009]
CC_{it}	0.209***	0.208***
	[0.030]	[0.029]
$CC_{it} * MPP_{it-1}$	-0.002	-0.002
	[0.010]	[0.009]
ΔInt.Clm.	0.146***	
	[0.020]	
ΔTot.Clm.		0.161***
		[0.023]
Observations	409	409
R-squared	0.695	0.703
Number of id	30	30
Wald Tests:	$\beta_2+\beta_4=0$	$\beta_2+\beta_4=0$
p-value:	0.005***	0.007***

Robust standard errors in brackets, *** p<0.01, ** p<0.05, * p<0.1

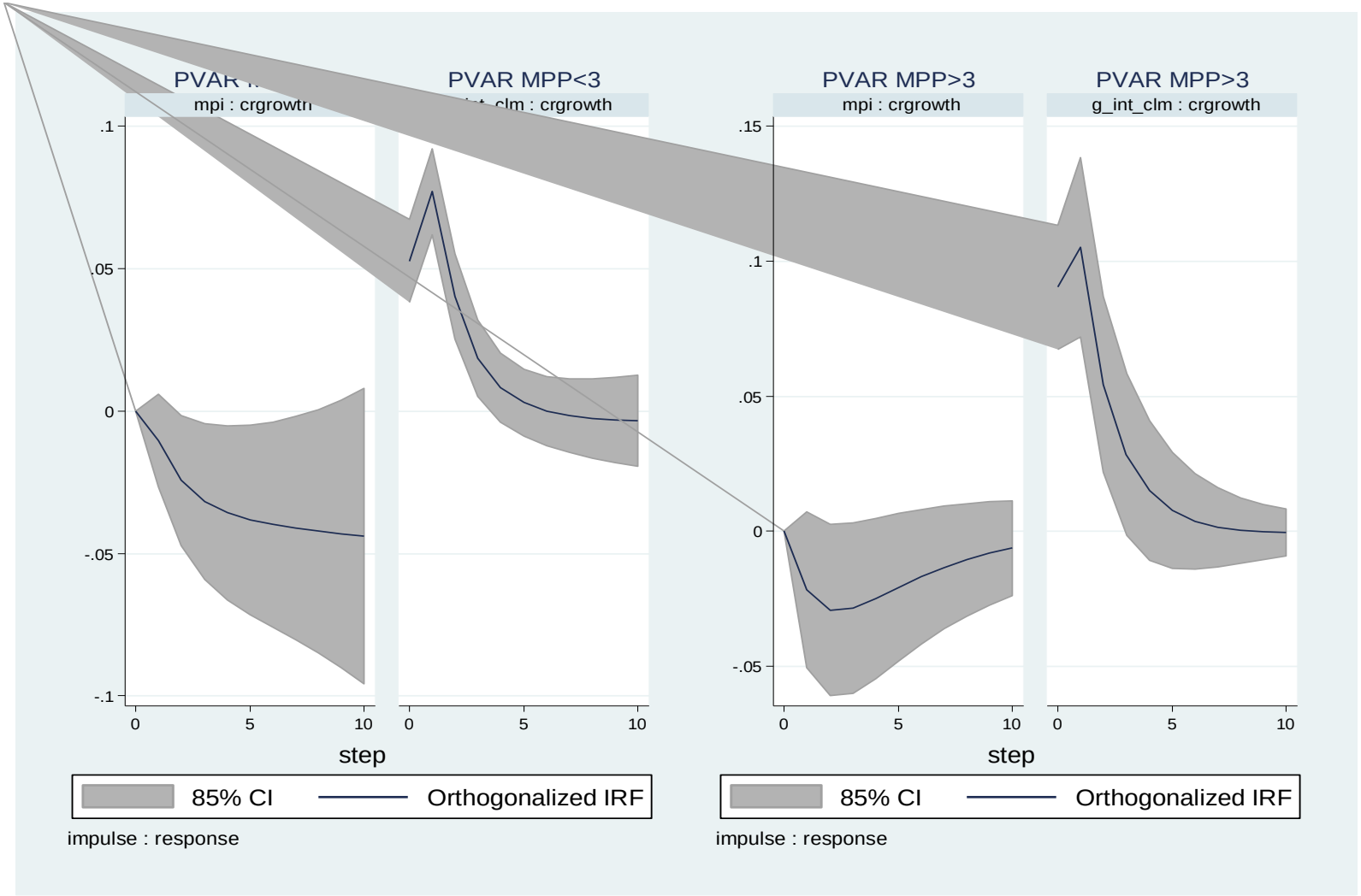
Results II: PVAR Estimation, No Control for Credit Cycle Phase



Results II: PVAR Estimation, During the Expansion Phase of Credits



Results III: PVAR Estimation, Controlling the number of MPPs



Conclusion

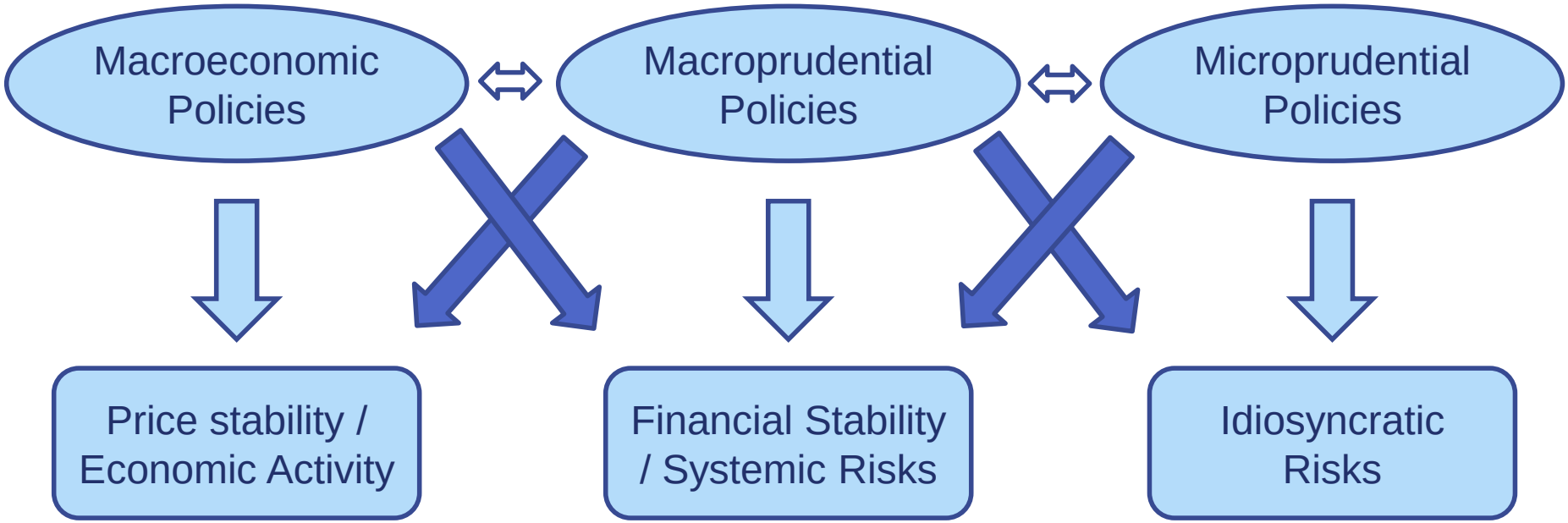
- As expected GL shocks have significant positive impact on credit growth
- MPPs has negative impact on credit growth
- This impact is higher during credit expansionary cycles
- Number of MPPs is important for managing credit growth

Further Work

- Increasing sample size by using newly published quarterly MPP database and BIS domestic credit data
- Measuring the effects of
  - MPP on different credit items
  - different MPP tools on credit growth
- Including more macro control variables
- …

Comments, suggestions are welcome!

- ***Macroprudential Policies (MPP):***
  - *a policy that uses primarily prudential tools*
    - *to limit systemic or system-wide financial risk,*
  - *Acting as stabilizers*
  - *Identifying the distribution of risks within the financial system*



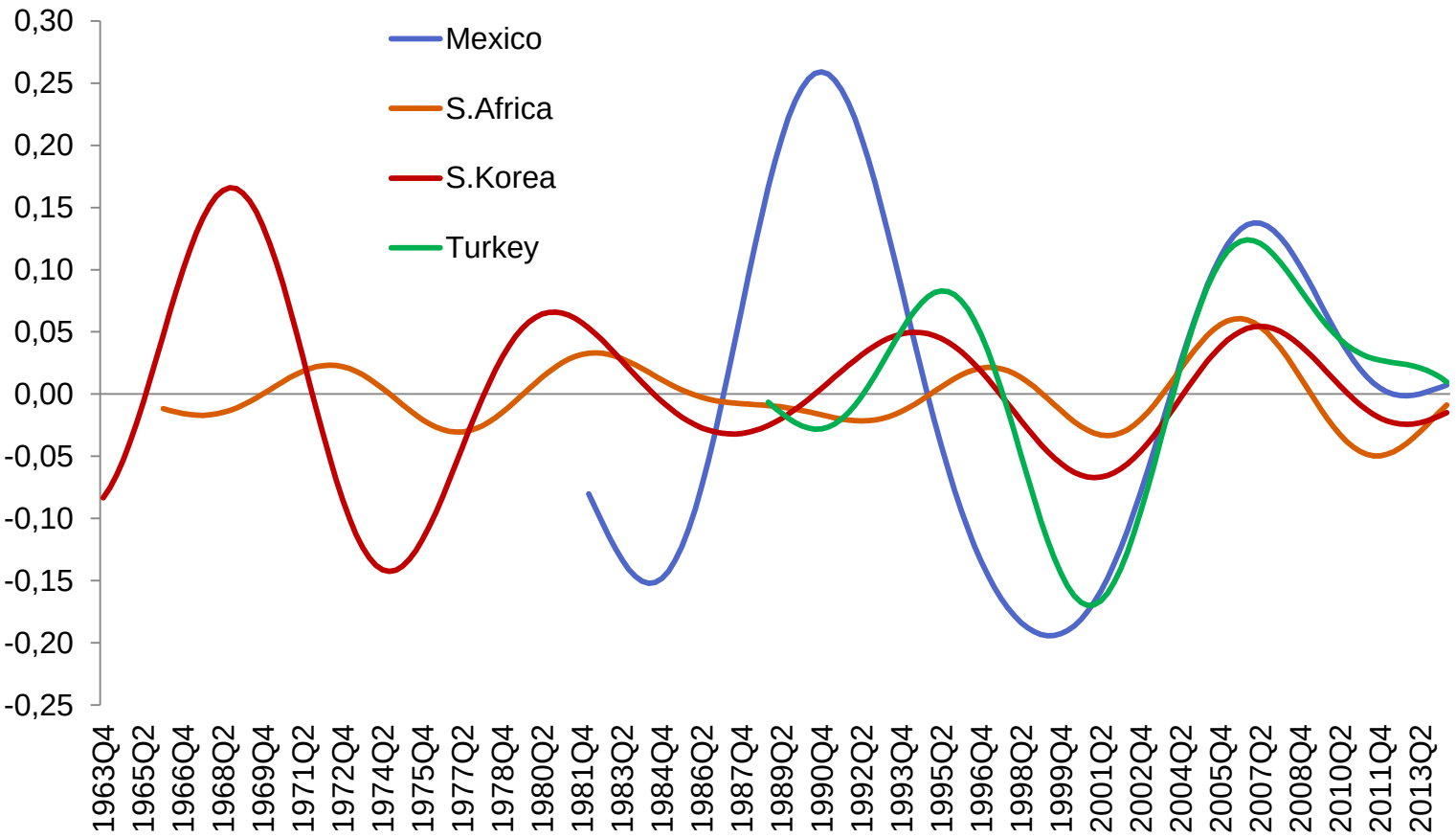
Source: Cerutti et al. (2015)

Global Liquidity (GL):

- Simply the «ease of financing» in the international financial system
- It is worth to monitoring to follow the build-up of financial vulnerabilities
- «Easy financing conditions can show up in a rapid growth of credit extended under weak underwriting standards.» (Caruna, 2013)
- «Excessive risk-taking and rapid credit growth can weaken the financial system through lower credit quality as well as through excessive leverage, maturity transformation and currency mismatches.» (Caruna, 2013)
- Official Liquidity: Monetary Base of Central Banks
- Private Liquidity: Cross border claims of banking sector

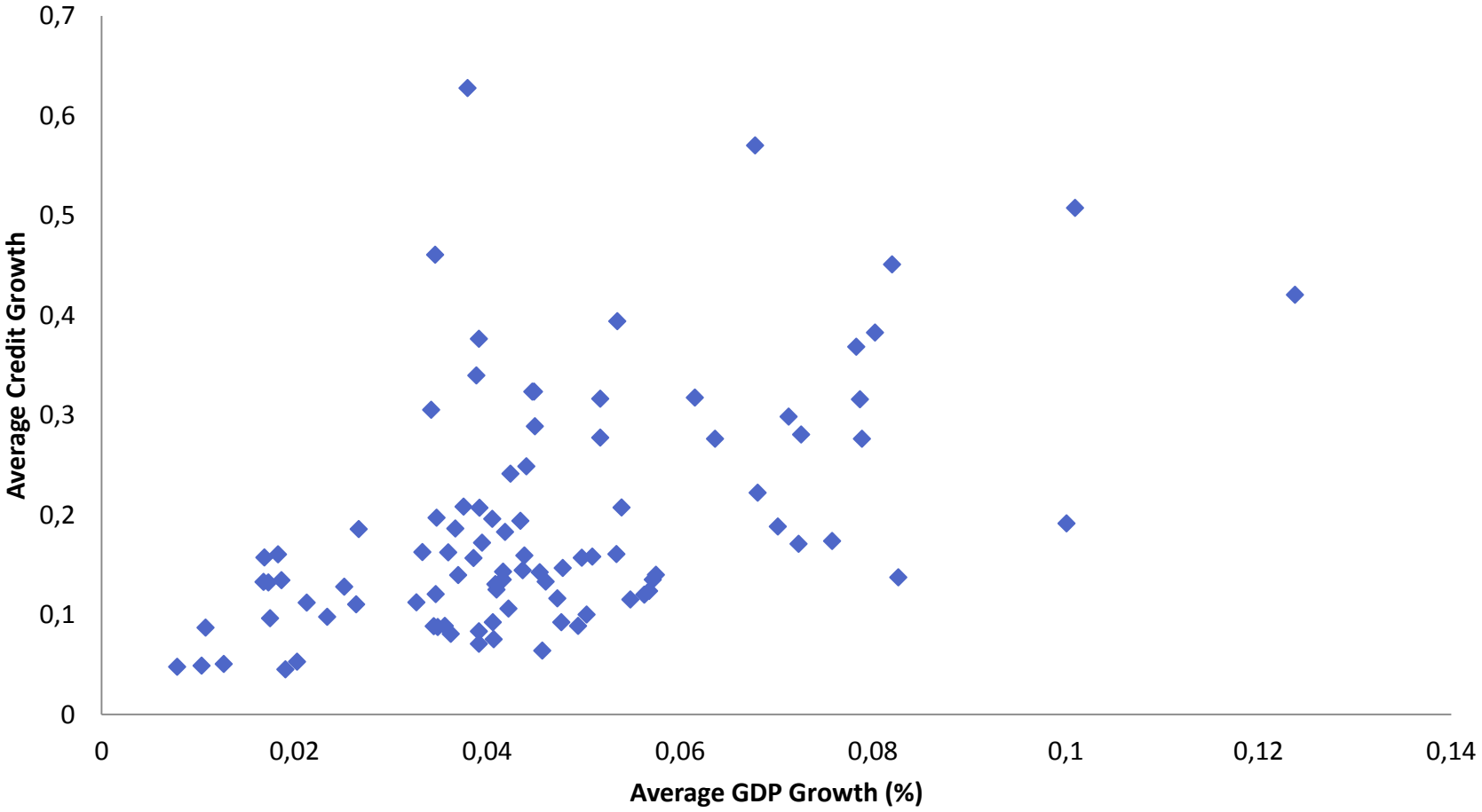
Importance of Credit Cycle

Credit / GDP Medium Term Cycle
(Band-pass filter min=32, quarters, max=120 quarters)

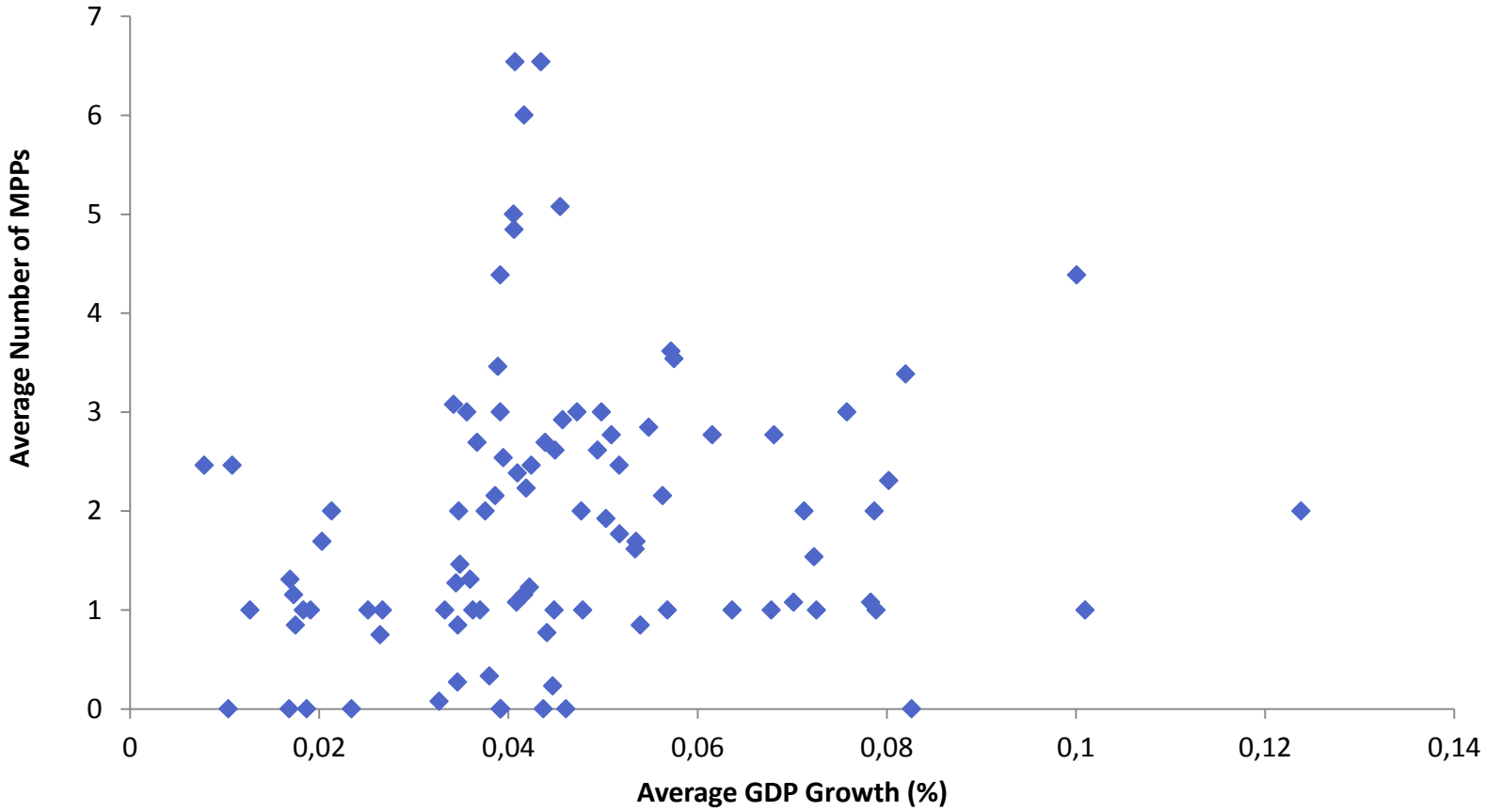


Source:BIS

Credit Growth vs. GDP Growth



Credit Growth vs. MPPs



Research Questions

1. Impact of global liquidity on domestic credit growth by controlling MPP tools? Effectiveness of MPP tools?

2. Effectiveness of MPP tools while state of the credit cycle is taken into account?