Joint Vienna Institute

Estimating the Macroprudential Policy Stance in CESEE

Reiner Martin*

Lead Economist, Joint Vienna Institute

Conference on 'Macroeconomic Imbalances and EU Convergence'

Sarajevo, Bosnia and Herzegovina, November 7, 2019

*Joint work with Markus Eller, Helene Schuberth and Lukas Vashold (all OeNB)

Joint Vienna Institute

Outline

1. Motivation and Background
2. A Composite Indicator for Macroprudential Policy
3. Macroprudential Policy Activity in CESEE EU Countries
4. Concluding Remarks and Way Forward

Joint Vienna Institute

Motivation and Background

Key lessons from the Global Financial Crisis

- **Monetary cannot alone achieve both price stability and financial stability**
- **The stability of individual financial institutions does not ensure the stability of the system as a whole**
- **In a number of euro area (and other fixed / quasi-fixed exchange rate) countries, fiscal and structural policies did not prevent the emergence from boom and bust cycles**

Macroprudential policy (MPP) can help to address these issues; MPP is likely to be particularly important in the EA and other countries with fixed exchange rates!

3

Joint Vienna Institute

Motivation and Background

Macroprudential Policy is complex …

"The ultimate objective of macroprudential policy is to contribute to the safeguarding of the stability of the financial system as a whole. This includes *strengthening the resilience of the financial system* and *decreasing the build-up of vulnerabilities*, thereby ensuring a sustainable contribution of the financial sector to economic growth." (ESRB 2014)

Intermediate objectives aim at mitigating systemic risks from (ESRB 2014):

- Excessive credit growth and leverage
- Excessive maturity mismatch and market illiquidity
- Direct/indirect exposure concentrations
- Misaligned incentives / reducing moral hazard – limit 'Too Big Too Fail'

Joint Vienna Institute

Motivation and Background

...has numerous instruments at its disposal,…

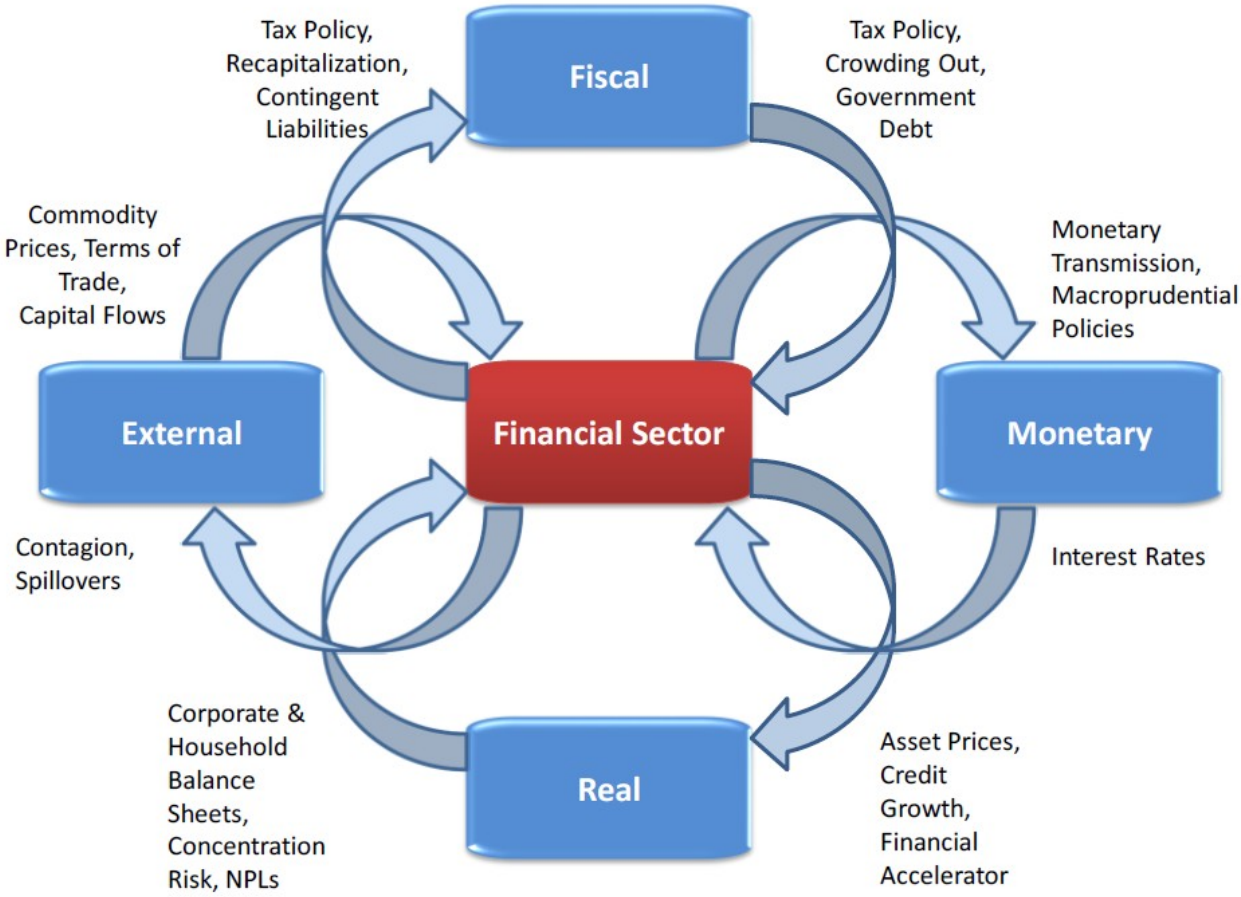
	CRD IV Tools	CRR Tools	Other Tools
Capital based measures	• **Countercyclical capital buffer** (CCB) • **Systemic risk buffer** (SRB) • **G-SII** & **O-SII** capital buffer	• **Risk weights** for real estate sector and intra-financial sector exposures • **Capital conserv. buffer** • **Own funds** level	• **Leverage ratio**
Liquidity-based measures		• **Liquidity requirements** • **Large exposure** limits (incl. intra-financial sector)	• **Non-stable funding levy** • **LTD ratio caps**
Borrower-based measures			• **LTV ratio caps** • **LTI ratio caps** • **DSTI ratio caps** • **DTI ratio caps**
Other measures		• **Large exposure** limits (incl. intra-financial sector) • **Disclosure requirements**	• **Margin and haircuts requirements**

Can be used by national authorities and the ECB (for SSM countries)

Can only be used by national authorities

Motivation and Background

...and is subject to numerous policy interactions.



IMF (2017)

Motivation and Background

So how does it feel making macroprudential policy decisions?

Composite indicators can simplify life for decision-makers - but awareness of limitations is important!

Joint Vienna Institute

Outline

1. Motivation and Background
2. A Composite Indicator for Macroprudential Policy
3. Macroprudential Policy Activity in CESEE EU Countries
4. Concluding Remarks and Way Forward

Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

- **Most of the literature trying to capture the intensity of macroprudential policies uses very simple indices**
  - Binary indicators – measure in place or not?
  - Tightening / loosening / ambiguous measures given + / - 1 or 0
  - Some studies cumulatively sum up tightening / loosening measures over time (e.g. Shim et al. 2013, Ahnert et al. 2018 or Alam et al 2019)
  - Intensity of changes not normally taken into account

- **Vandenbussche et al. (2015) provides an intensity-adjusted index for macroprudential policy measures, based on 8 subindices**

  Detailed information about individual measures for 16 Central, Eastern and South-Eastern Europe (CESEE) countries, covering the time period 1997 – 2010

- **Our Macroprudential Policy Index (MPPI) builds on Vandenbussche et al. (2015)**

  We extend and refine their approach by inter alia, covering more measures, extending the time period to 2018 and refining weighting rules

Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

- **The MPPI covers the main macroprudential policy tools, grouped into three types of measures:**
  - Capital-based measures
  - Borrower-based measures
  - Liquidity-based measures

- **It is (for the time being) constructed for eleven CESEE EU member states**

- **In addition to Vandenbussche et al. (2015), the MPPI leverages on three recently released databases for macroprudential policies**
  - Alam et al. (2019)
  - Budnik and Kleibl (2018)
  - Kochanska (2017)

- **May be extended into a more encompassing Prudential Policy Index (PPI) by adding (non-macroprudential) Minimum Capital Requirements and Minimum Reserve Requirements**

Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

Key features of the existing macroprudential databases

- Alam et al. (2019)

  'iMaPP' Database; 138 countries; 27 instruments (some distinguished by currency). Time period starts in 1990; monthly reporting. Info on implementation date only. Qualitative info on tightening / loosening. Average LTV index per country.

- Budnik and Kleibl (2018)

  'MaPPED' Database; EU countries; very comprehensive set of measures (distinguished by currency); starts in 1951 (de facto mostly 1993); monthly reporting. Info on decision and implementation dates. Qualitative assessment of tightening / loosening effect. Main data source for our MPPI!

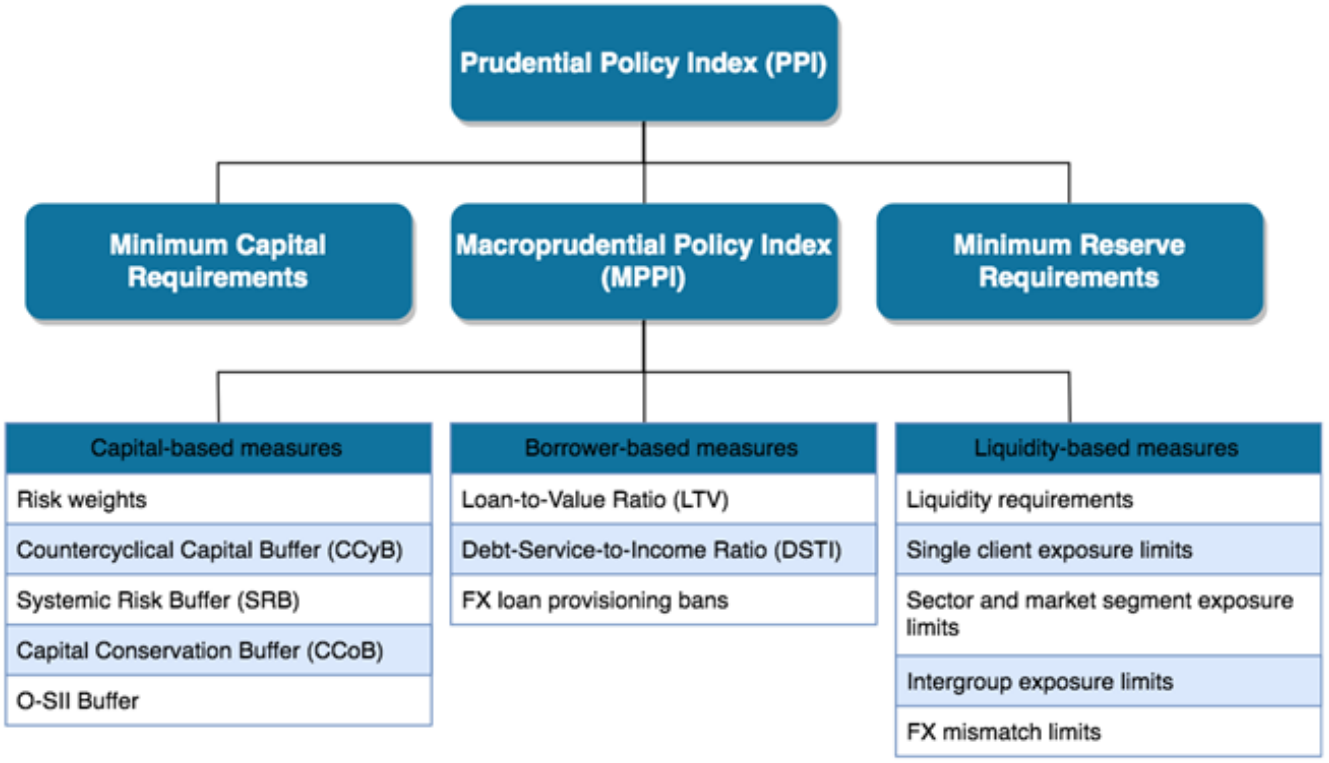
- Kochanska (2017)

  'ESRB' Database; EU countries; very detailed information about individual measures (distinguished by currency); information mainly on measures as of 2014. Decision and implementation date information. No assessment of tightening / loosening effect but most frequently and timely updated.

Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

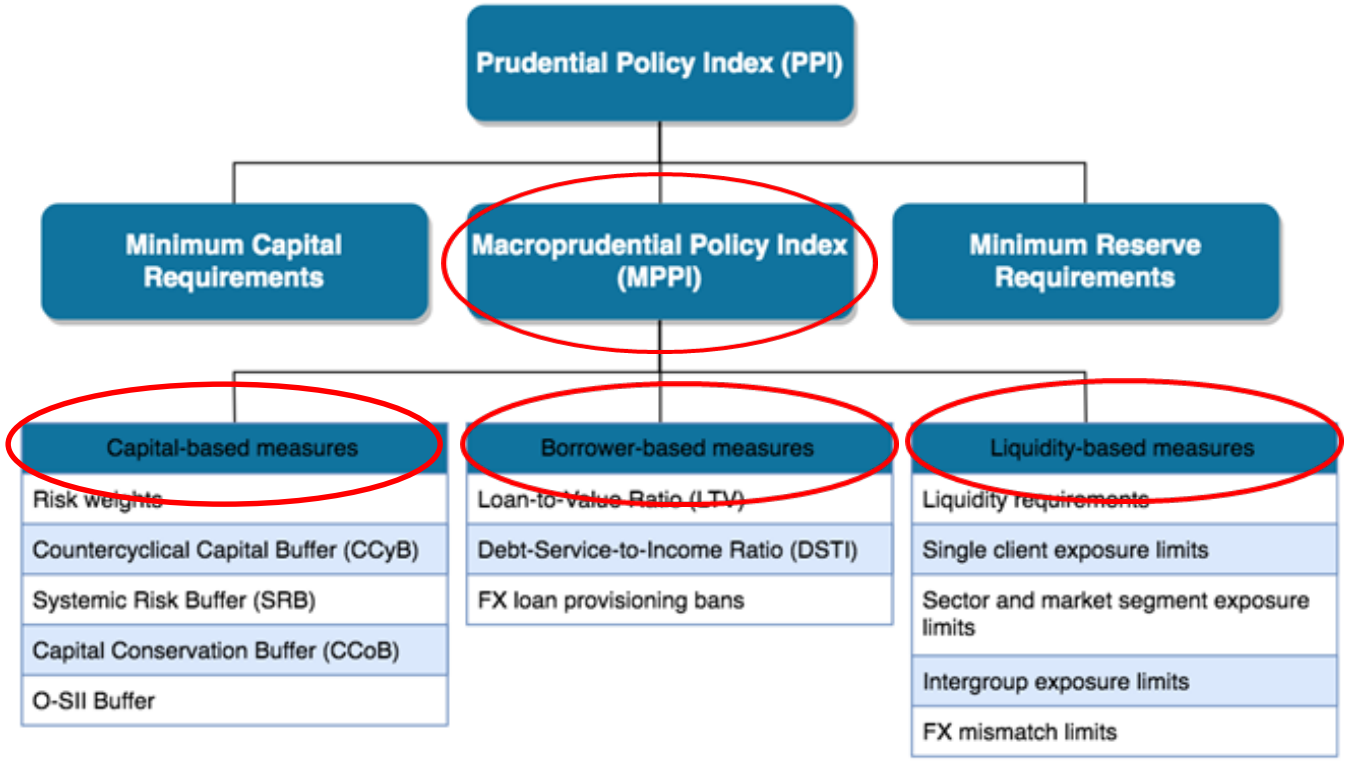
Schematic Overview of the (M)PPI



Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

Schematic Overview of the (M)PPI



Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

- **Aggregation approaches for different macroprudential policy measures:**
  - ‘Face value aggregation’

    Most simple form of aggregation, used mainly for capital-based measures (buffers). Example: An increase in the CCyB by 1% increases the index by 1

  - ‘Formula-based aggregation’

    More complicated, requiring a considerable degree of judgement. Used for example for borrower-based measures or large exposure limits. Example: A reduction of a maximum LTV ratio by 5 pp’s increases the index by 1

  - ‘Tightening / loosening aggregation’

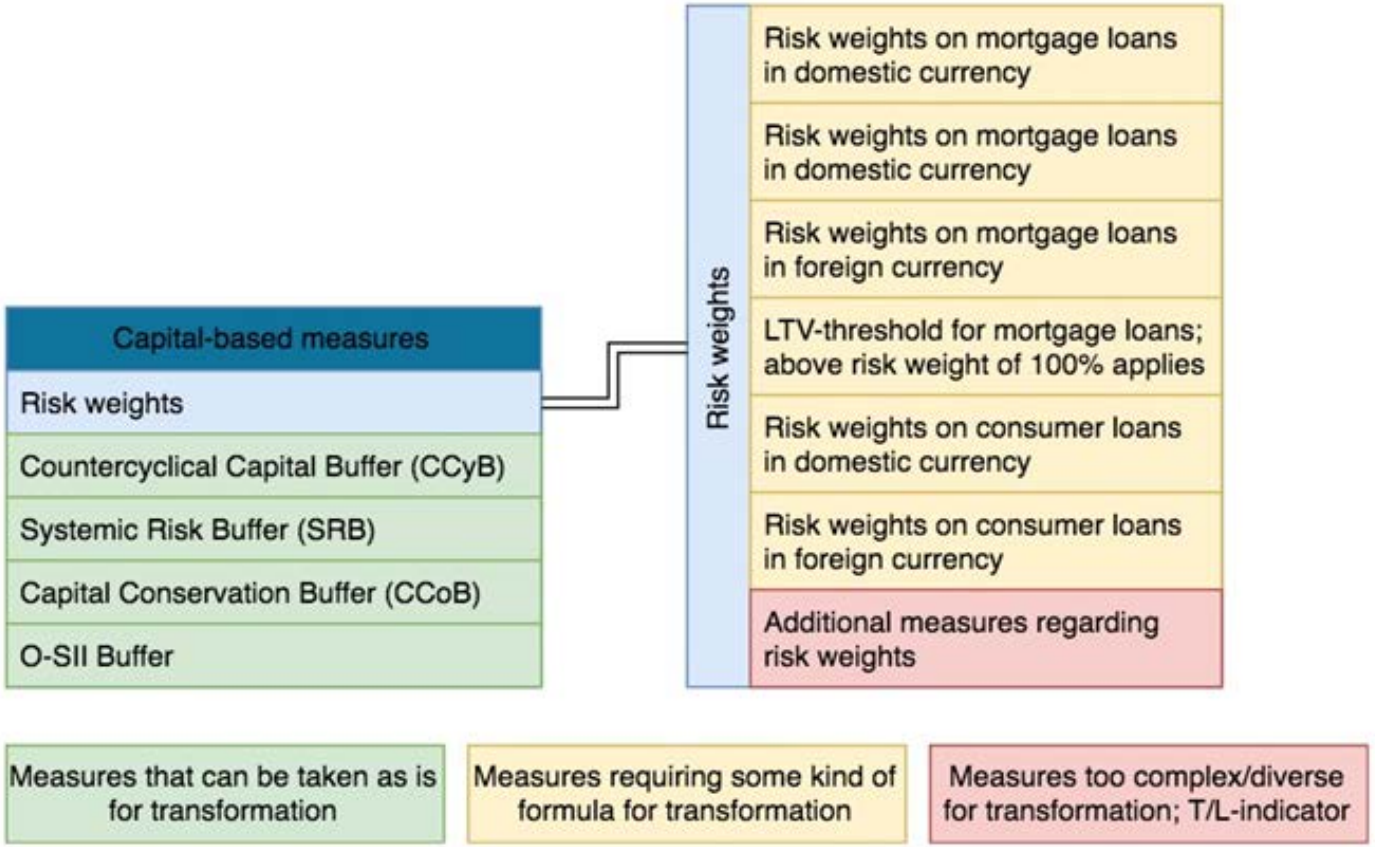
    Used for particularly complex and / or hard to aggregate measures. Considerable judgement applied. Example: increase in overall liquidity requirements has a larger impact on the index than an increase for FX exposures only.

- **Considerable use of expert judgement is unavoidable. Impact assessments of specific measures, country-specific bank balance-sheet analysis etc. help, however, to objectivize the aggregation.**

Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

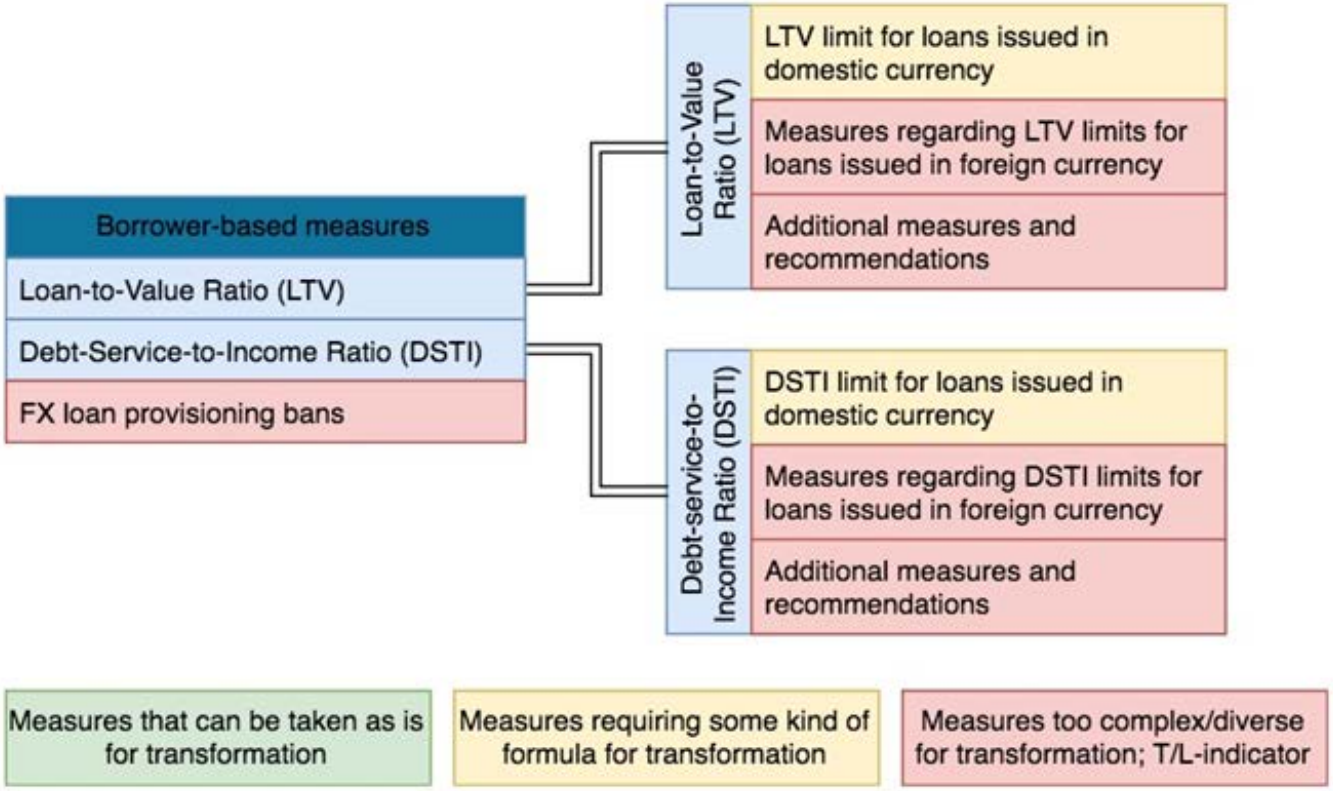
Capital-based measures captured by the MPPI



Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

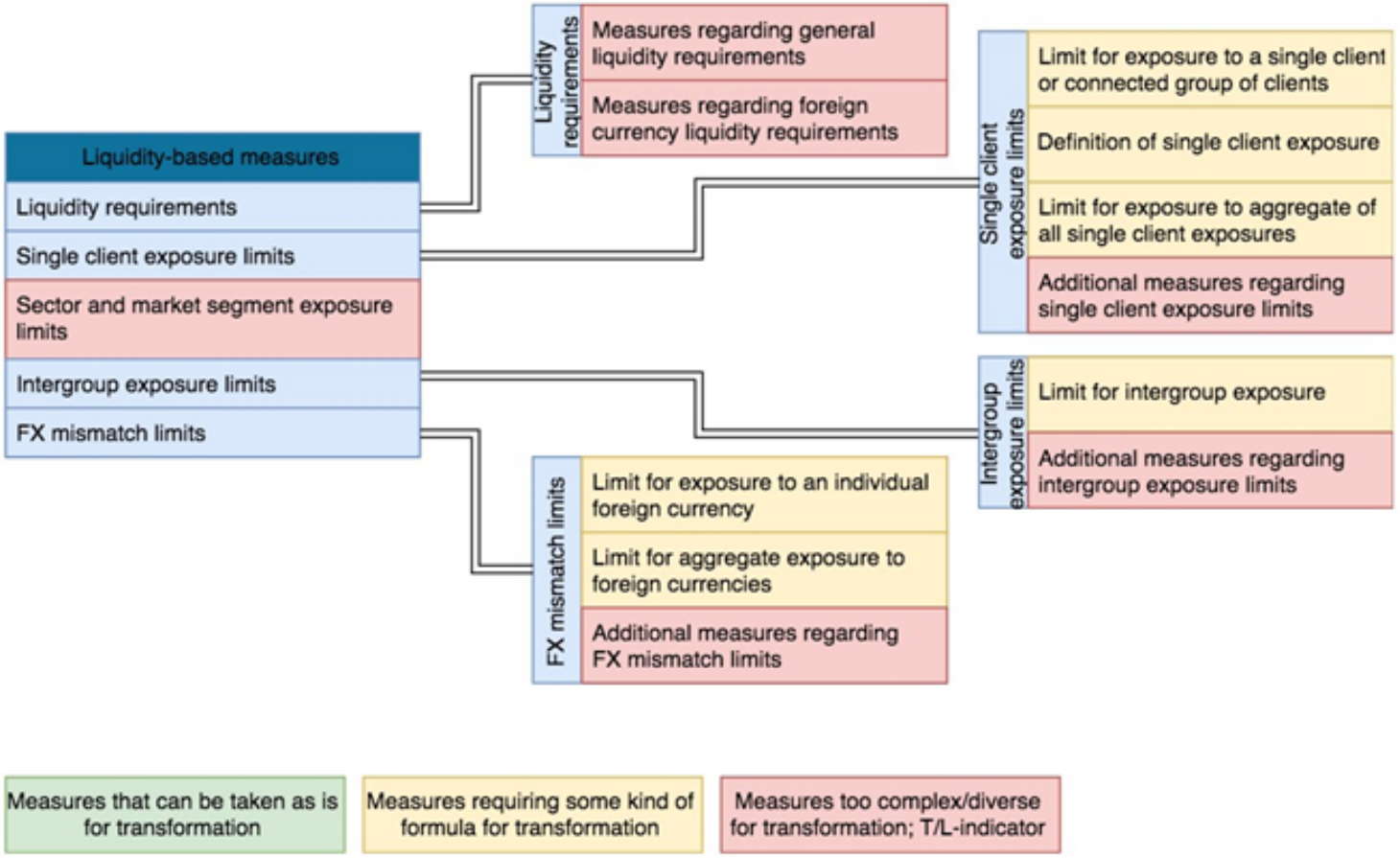
Borrower-based measures captured by the MPPI



Joint Vienna Institute

A Composite Indicator for Macroprudential Policy

Liquidity-based measures captured by the MPPI



Joint Vienna Institute

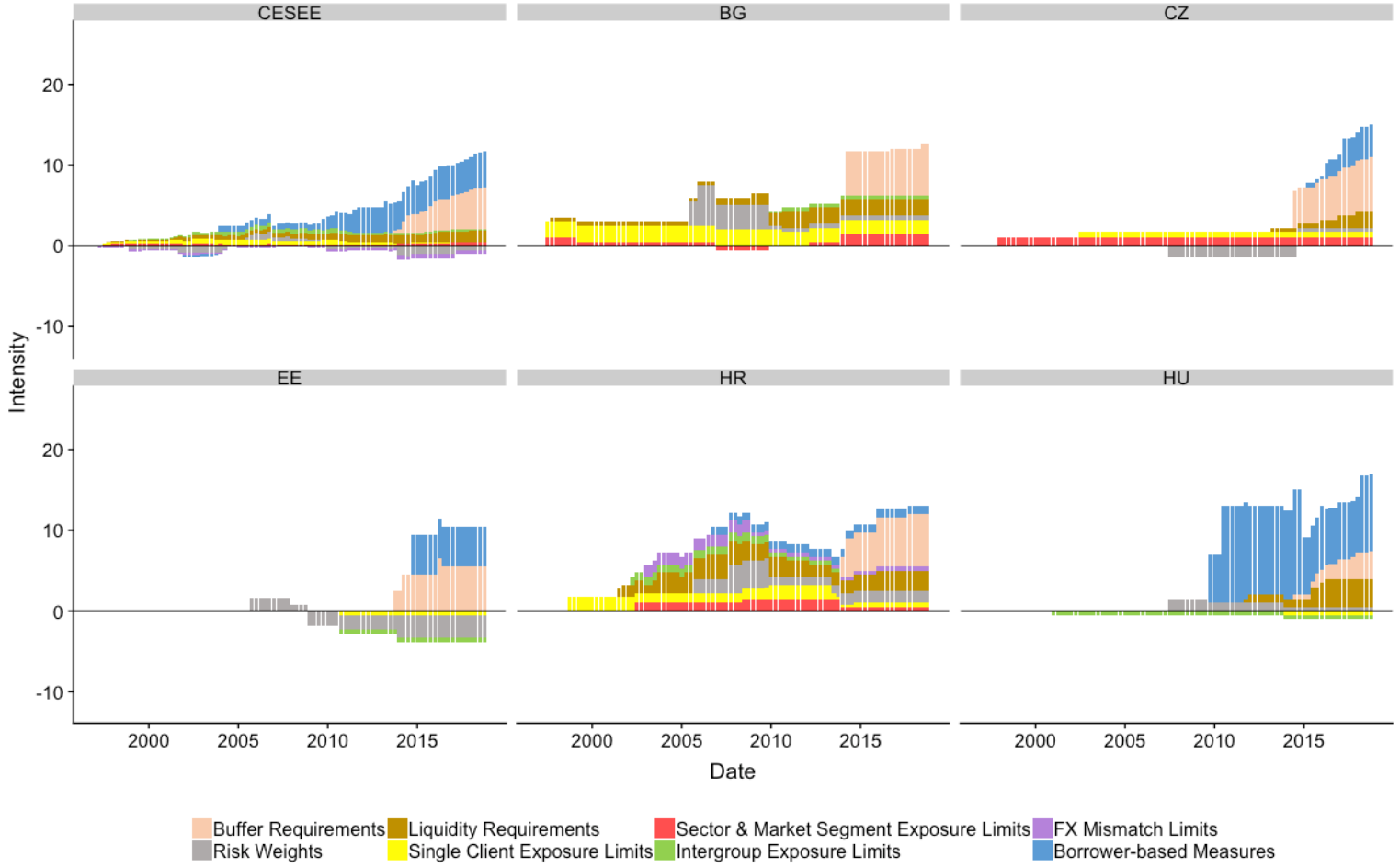
Outline

1. Motivation and Background
2. A Composite Indicator for Macroprudential Policy
3. Macroprudential Policy Activity in CESEE EU Countries
4. Concluding Remarks and Way Forward

Joint Vienna Institute

Macroprudential Policy Activity in CESEE EU Countries

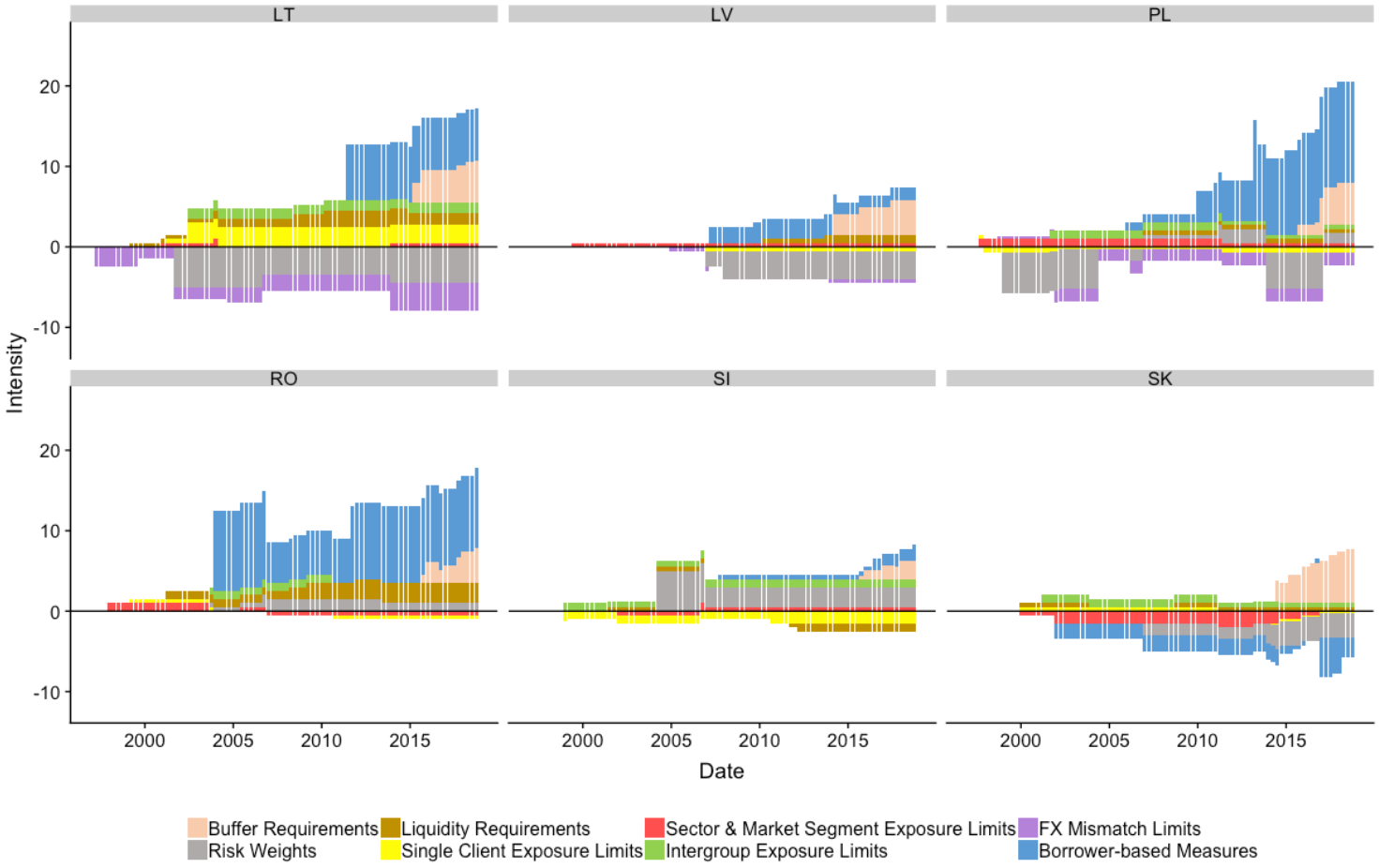
MPPI index in CESEE EU Countries (1)



Joint Vienna Institute

Macroprudential Policy Activity in CESEE EU Countries

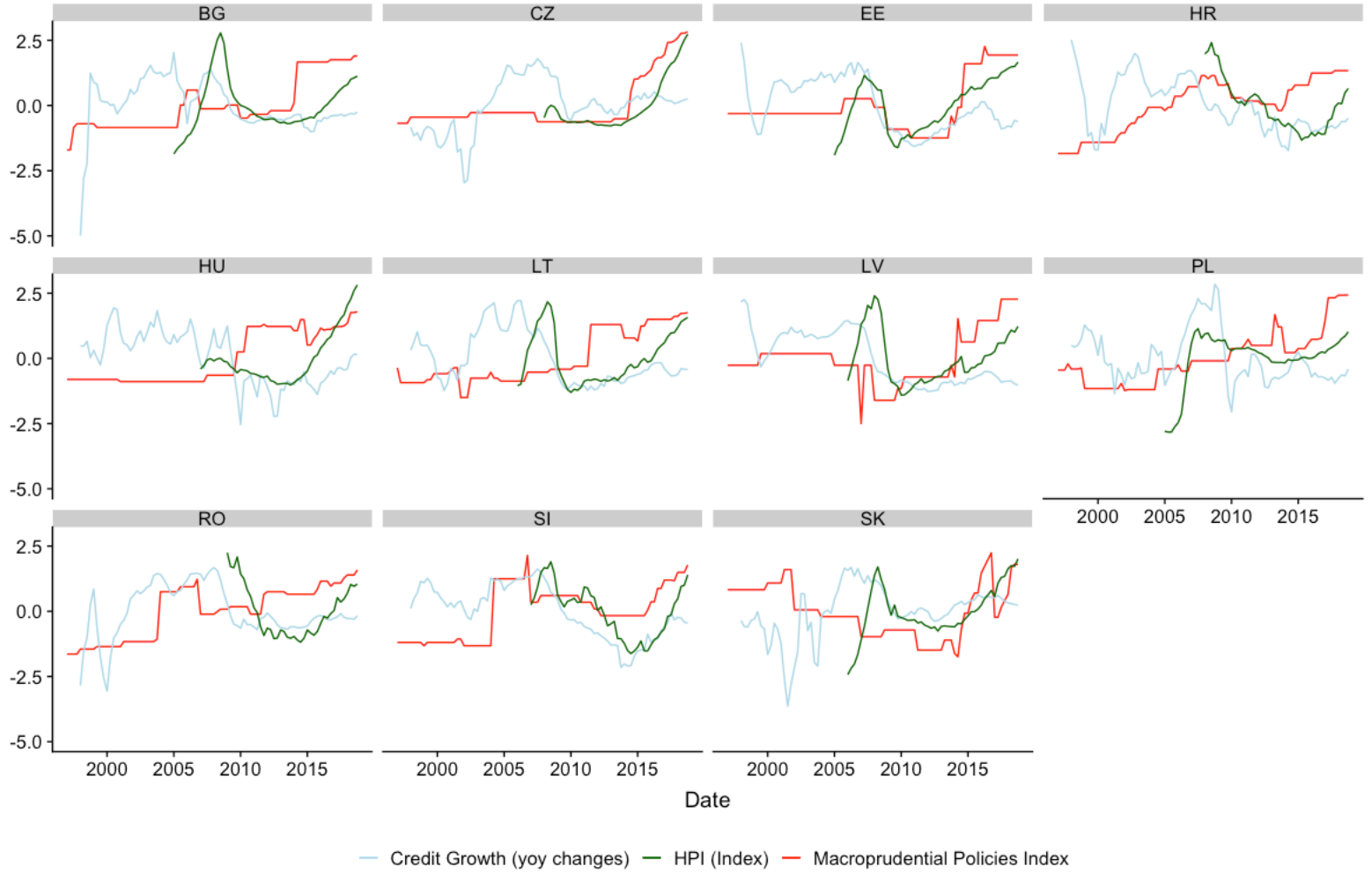
MPPI index in CESEE EU Countries (2)



Joint Vienna Institute

Macroprudential Policy Activity in CESEE EU Countries

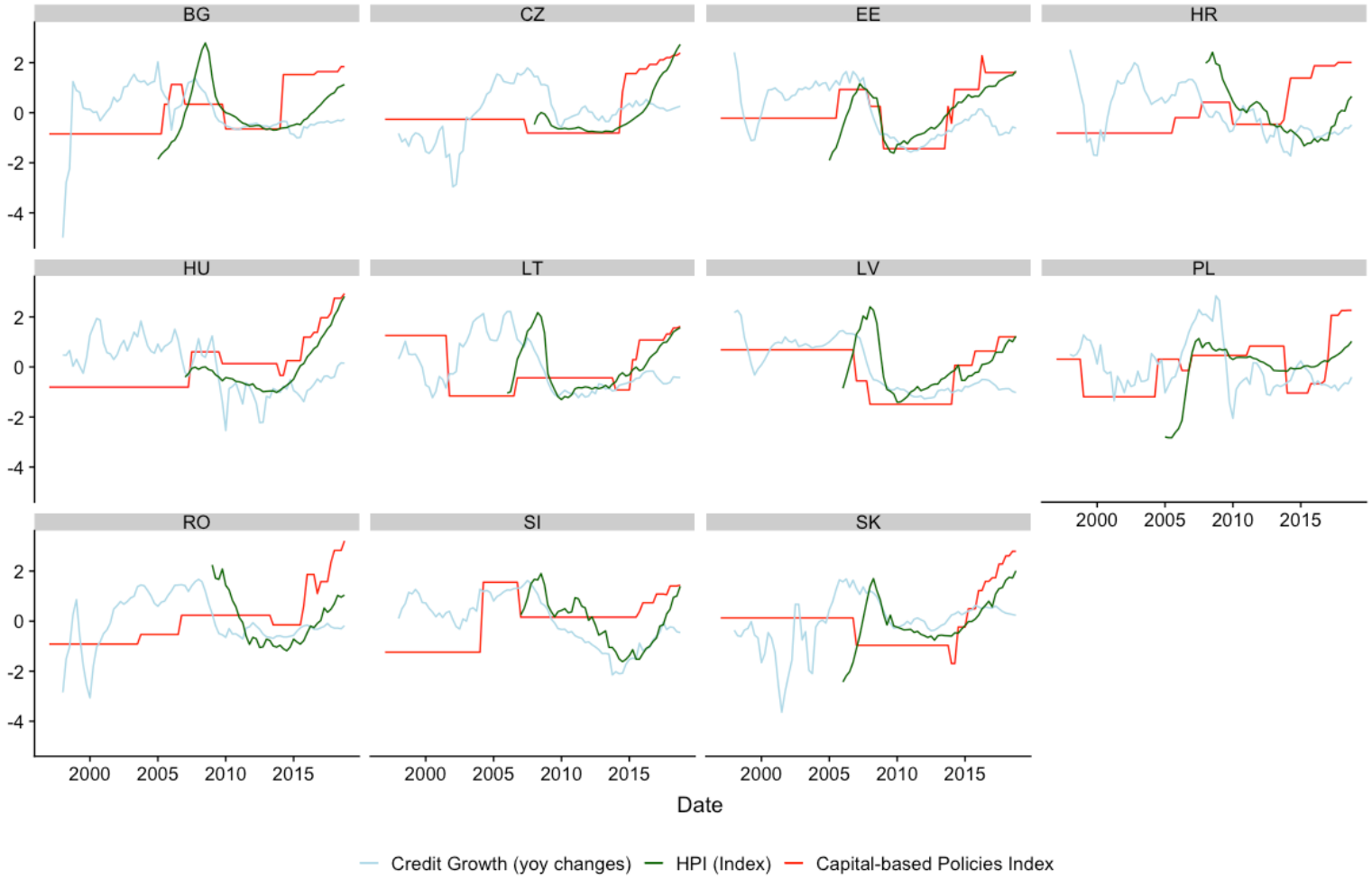
MPPI, credit and house price growth in CESEE EU Countries



Joint Vienna Institute

Macroprudential Policy Activity in CESEE EU Countries

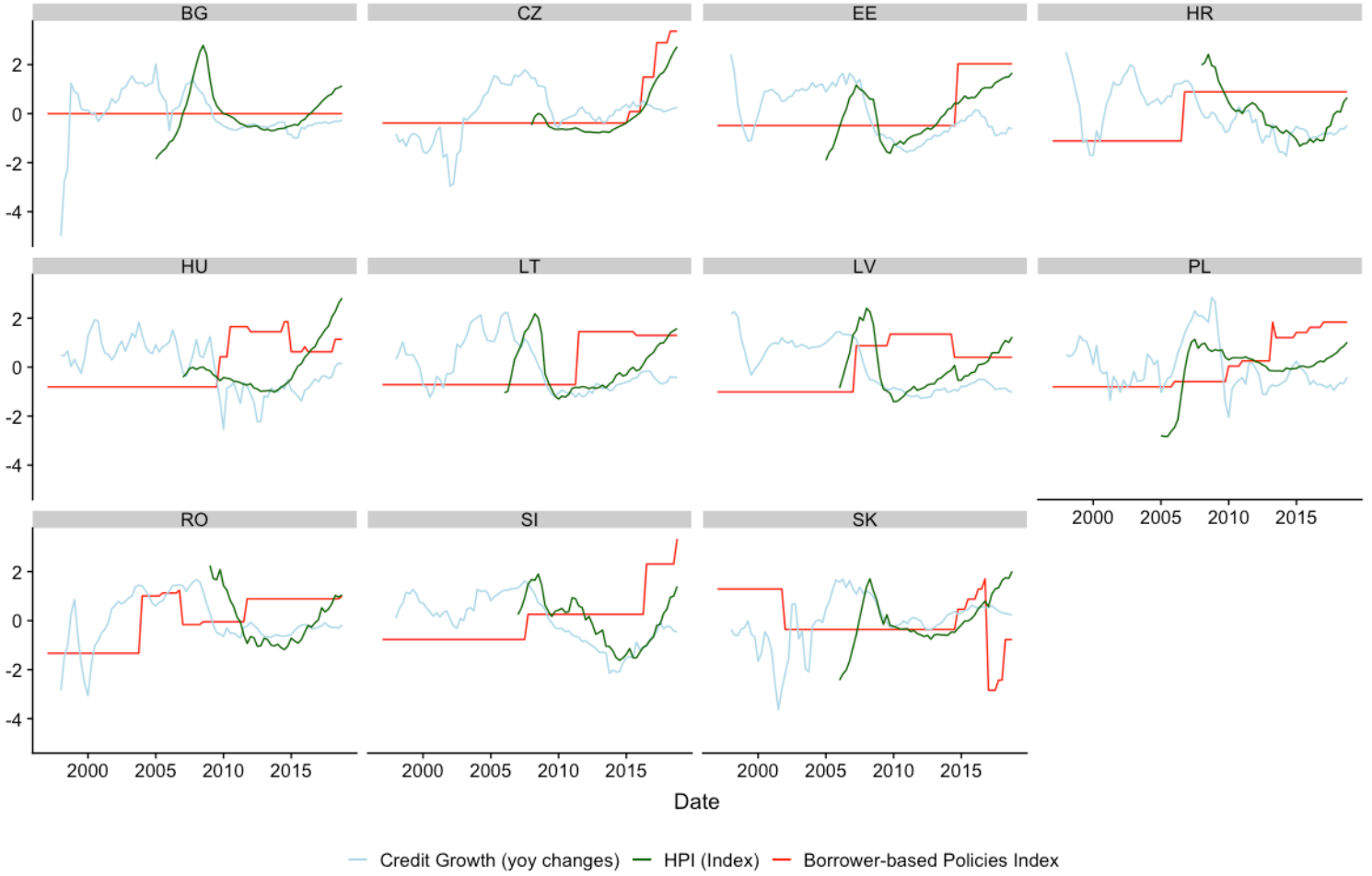
Capital-based MPP measures, credit and house price growth



Joint Vienna Institute

Macroprudential Policy Activity in CESEE EU Countries

Borrower-based MPP measures, credit and house price growth



Joint Vienna Institute

Macroprudential Policy Activity in CESEE EU Countries

- **Development of the MPPI during the 1997 – 2018 period shows a continuous gradual increase in the intensity of macroprudential policy use**
  - The composition of MPP measures changed significantly over time
  - Borrower-based measures were used as early as 2000 but gained more prominence since the start of the global financial crisis. More recently, their use seems to stagnate
  - Buffer requirements increased significantly in importance since around 2011/12
  - The use of risk weights and FX mismatch limits declined recently, the latter most likely due to the introduction of the euro in a number of CESEE countries
  - The use of other instruments, including liquidity requirements remained rather stable over time

Joint Vienna Institute

Macroprudential Policy Activity in CESEE EU Countries

- **Differences across individual CESEE countries are very significant, both in terms of the composition of instruments and the timing of MPP instrument activation**
  - Bulgaria, Croatia, Romania and (just before the crisis) Latvia, appear as regional 'frontrunners' in the use of MPP instruments
  - More recently, the Czech Republic, Estonia, Lithuania, Hungary and Poland considerably increased the use of MPP instruments

- **The recent increase in the use of MPP in the region appears to be highly correlated with the widespread increase in (residential) house prices**
  - By contrast, credit growth developments seem relatively subdued in most CESEE EU countries and a less likely (obvious) trigger for the increased use of MPP tools

- **Despite widespread house price increases in the region, most of the recent increase in MPP activity relates to capital-based measures**
  - Empirical evidence on the impact of MPP tools suggests, however, that borrower-based measures are relatively more effective in curbing the financial cycle and dampening asset price growth (see e.g. Basten and Koch (2015), Kanngiesser et al. (2017), Kuttner and Shim (2013) and Claessens et al. (2014))

Joint Vienna Institute

Outline

1. Motivation and Background
2. A Composite Indicator for Macroprudential Policy
3. Macroprudential Policy Activity in CESEE EU Countries
4. Concluding Remarks and Way Forward

Joint Vienna Institute

Concluding remarks and Way Forward

- **Macroprudential policy is an increasingly popular, potentially very useful and at the same time very complex policy area**
- **Composite indicators such as MPPI rely on expert judgement and simplification – but they can help to simplify life for decision-makers**
- **The MPPI shows a gradual increase in the use of macroprudential policy during the 1997 – 2018 period**, and significant changes in the preferred type of measures
- **Differences across CESEE countries are very significant in terms of the composition of instruments and the timing of MPP instrument activation**
- **Recent MPPI increases are mainly driven by the increased use of capital-based measures and appear highly correlated with widespread house prices increases.** Is their room to optimize the instrument selection?

Joint Vienna Institute

Concluding remarks and Way Forward

- **Move from MPPI to PPI, thus obtaining a more encompassing view of the (macro)prudential policy stance in the CESEE region** (in progress)

- **Test usefulness of (M)PPI for macroprudential impact analysis** (in progress)

Table: Peak responses of private sector credit growth to a tightening shock in macroprudential policies

Country	BG	CZ	EE	HR	HU	LT	LV	PL	RO	SI	SK
Entire period (2000-2018)	1			6	2		14	1	3		2
Low interest rate episodes		1	7	8		3	3	2	2	1	3
High interest rate episodes	3	2	3	2		2	1	8	2		

Source: Eller et al. (2019, in progress).
Note: table shows peak responses of credit growth to the identified tightening (one standard deviation) shock in the (standardized) overall macroprudential policy indicator (PPI), based on FAVAR estimates. A darker colour indicates a larger peak response. White boxes indicate insignificant impulse response functions (68% confidence interval comprises also zero responses. The number marks the quarter after the shock at which the IRF reaches its minimum (negative numbers in red) or maximum (positive numbers in blue).

- **Collect feedback on the aggregation approach and potentially review it,** notably the 'formula-based' and 'tightening / loosening' aggregation components

Joint Vienna Institute

Thank you for your attention!

Reiner Martin
Lead Economist
Joint Vienna Institute
rmartin@jvi.org
reiner_martin@hotmail.com

Joint Vienna Institute

References

Ahnert T, Forbes K, Friedrich C and Reinhardt D (2018) Macroprudential FX regulations: shifting the snowbanks of FX vulnerability? NBER Working Paper 25083

Alam Z, Alter A, Eiseman J, Gelos RG, Kang H, Narita M, Nier E,Wang N et al. (2019) Digging deeper – evidence on the effects of macroprudential policies from a new database. Technical report, International Monetary Fund

Basten, C. and C. Koch (2015), Higher bank capital requirements and mortgage pricing: evidence from the Countercyclical Capital Buffer (CCB), BIS Working Papers 511, September.

Budnik KB and Kleibl J (2018) Macroprudential regulation in the European Union in 1995-2014: introducing a new data set on policy actions of a macroprudential nature. ECB Working Paper 2123. Updated dataset as of February 22, 2018

Claessens, S. S. R. Ghosh and R. Mihet (2014), Macro-Prudential Policies to Mitigate Financial System Vulnerabilities, IMF Working Paper 14/155

Eller, M et. al. (2019), Capital Flows and the Stabilizing Role of Macroprudential Policies in CESEE, mimeo

ESRB (2014), "*Handbook on Operationalising Macroprudential Policy in the Banking Sector*", European Systemic Risk Board, March.

IMF (2017), Approaches to macrofinancial surveillance in Article IV reports, IMF Policy Paper, March

Kanngiesser, D, R. Martin, L. Maurin and D. Moccero (2017), Estimating the impact of shocks to bank capital in the euro area, ECB Working Paper 2077, June

Kochanska U (2017) The ESRB macroprudential measures database. IFC Bulletins chapters 46

Kuttner K. and I. Shim (2013), Can non-interest rate policies stabilise housing markets? Evidence from a panel of 57 economies, BIS Working Papers 433, November

Vandenbussche J, Vogel U and Detragiache E (2015) Macroprudential policies and housing prices: a new database and empirical evidence for Central, Eastern, and Southeastern Europe. Journal of Money, Credit and Banking 47(S1), 343–377