



Sinaia, October 2015

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# Addressing the leakages of macro-prudential policy

Horatiu Lovin

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# Agenda

1. Views on the leakages concerning macro-prudential policy (IMF and ESRB)
2. Objectives of macro-prudential authority
3. Objectives of banks
4. Theoretical study - Strategic interactions between macro-prudential authority and banks
5. Conclusions

# 1. Views on the leakages concerning macro-prudential policy

- “Macroprudential policies are prone to being be circumvented, both at the national level (boundary problem) and through cross-border arbitrage (leakage problem)”

*(Key Aspects of Macroprudential Policy, IMF, June 2013)*

- “Possible negative effects of the structural buffer include a loss of the cross-border level playing field, a decline in banks’ voluntary capital and leakages to the shadow banking system.”

*(Recommendation of the ESRB on intermediate objectives and instruments of macro-prudential policy, April 2013)*

# 1. Views on the leakages concerning macro-prudential policy (cont')

- “Domestic leakages of capital tools can be addressed by expanding the perimeter of regulation to nonbanks or by consolidating such activity, when part of a banking group”  
(*Staff Guidance Note on Macroprudential Policy – Detailed Guidance on Instruments*, IMF, December 2014)

# 1. Views on the leakages concerning macro-prudential policy (cont')

- “Coordination [between national macro-prudential authorities] can strengthen the effectiveness and efficiency of macro-prudential policy by limiting the scope for arbitrage and leakage”

(Recommendation of the ESRB on intermediate objectives and instruments of macro-prudential policy, April 2013)

- “Cross-border leakages of capital tools can be addressed by reciprocity arrangements, or alternatively greater host control over foreign branches”

*(Staff Guidance Note on Macroprudential Policy – Detailed Guidance on Instruments, IMF, December 2014)*

## 2. Objectives of macro-prudential authority

- Maintaining financial stability
- Impeding building-up systemic risks within financial sector
- Strengthen resilience of financial sector, if needed
- Ensuring level playing field for all participants to financial system
- Support the core purpose of the financial system

## 3. Objectives of banks

- Generating profits
- Expanding/growing business
- Avoid liquidity runs
- Ensuring a constant flow of dividend payments to the shareholders in medium run
- Benefiting from a stable macroeconomic and financial environment

## 4. Theoretical study - Strategic interactions between macro-prudential authority and banks

- We consider a *Nash equilibrium model* of mixed strategies

### Assumptions:

- Macro-prudential authority and banks search to maximize their pay-offs
- Both macro-prudential authority and banks pay-offs depends, in part, of the decision of the other one
- Macro-prudential authority and banks could cooperate, but any cooperation has to be self-enforcing



## 4. Theoretical study - Strategic interactions between macro-prudential authority and banks (cont')

### Description of Nash equilibrium model:

- We note with M the macro-prudential authority and with B the banks
- M has a set of actions  $S_M = (s_{M1}, s_{M2}, \dots, s_{Mn})$  and B has a set of actions  $S_B = (s_{B1}, s_{B2}, \dots, s_{Bn})$
- The pay-off functions are  $u_M(S_M) = u_M(s_M | s_B)$  for M and  $u_B(S_B) = u_B(s_B | s_M)$  for B; for both M and B, the actions' pay-off depends on the other participant's strategies in response to their own strategy

## 4. Theoretical study - Strategic interactions between macro-prudential authority and banks (cont')

- A mixed strategy
  - A mixed strategy of M or B is a collection of strategies to which are assigned probabilities

$$MS_M = \sum_{\alpha=1}^n p_{M\alpha} * s_{M\alpha}, \text{ where } \sum_{\alpha=1}^n p_{M\alpha} = 1 \text{ and } p_{M\alpha} \geq 0$$

$$MS_B = \sum_{\beta=1}^n q_{B\beta} * s_{B\beta}, \text{ where } \sum_{\beta=1}^n q_{B\beta} = 1 \text{ and } q_{B\beta} \geq 0$$

- Mixed strategy Nash equilibrium
  - A set of strategies  $s = (s_1^*, s_2^*, \dots, s_n^*)$  is a Nash equilibrium if any of M and B applies its best strategy in response to the other one's strategy

$$u_M(s_M^* | s_B^*) \geq u_M(s_M | s_B^*), \forall s_M \in S_M$$

$$u_B(s_B^* | s_M^*) \geq u_B(s_B | s_M^*), \forall s_B \in S_B$$

## 4. Theoretical study - Strategic interactions between macro-prudential authority and banks (cont')

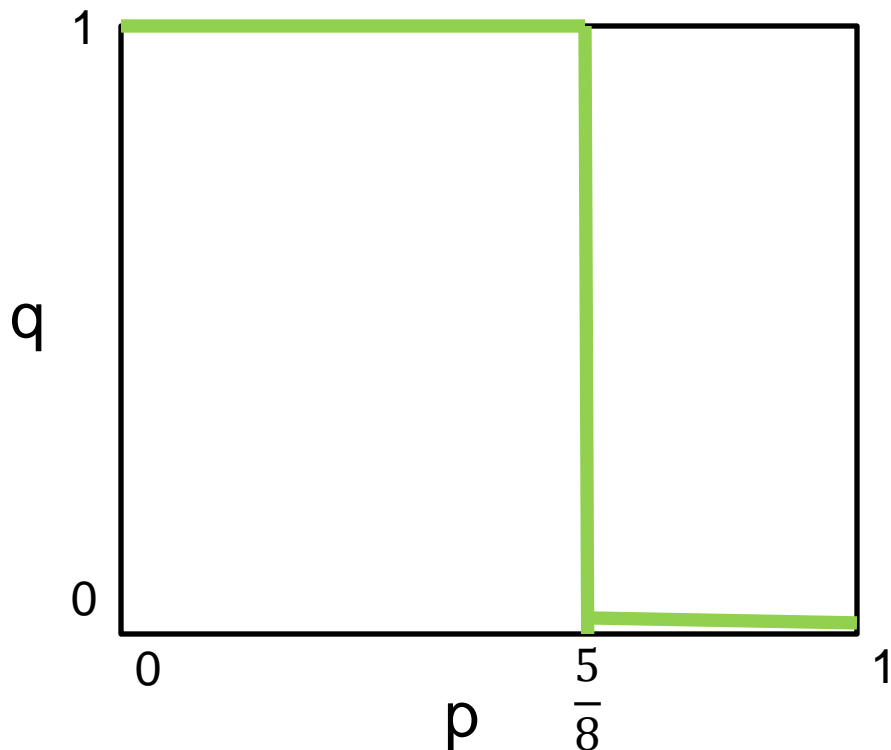
### Example:

- Let us consider the following strategies of macro-prudential authority (M) and of banks (B), with their corresponding pay-offs

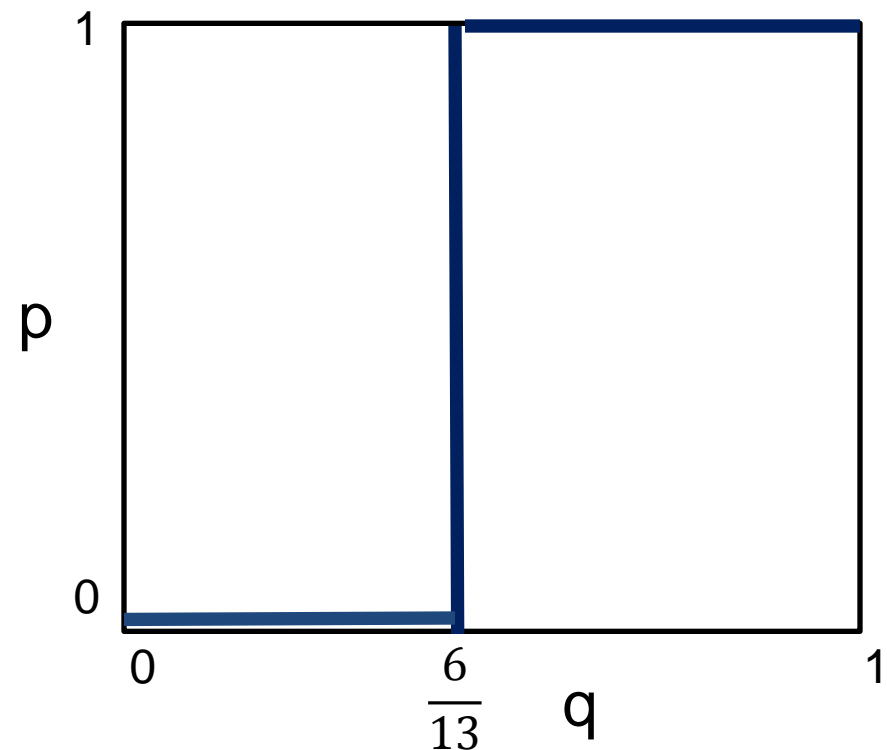
M	+3	a	$\alpha$	-2	B
	-2	a	$\beta$	+1	
	-4	b	$\alpha$	+2	
	+4	b	$\beta$	-3	

## 4. Theoretical study - Strategic interactions between macro-prudential authority and banks (cont')

Best response function of banks

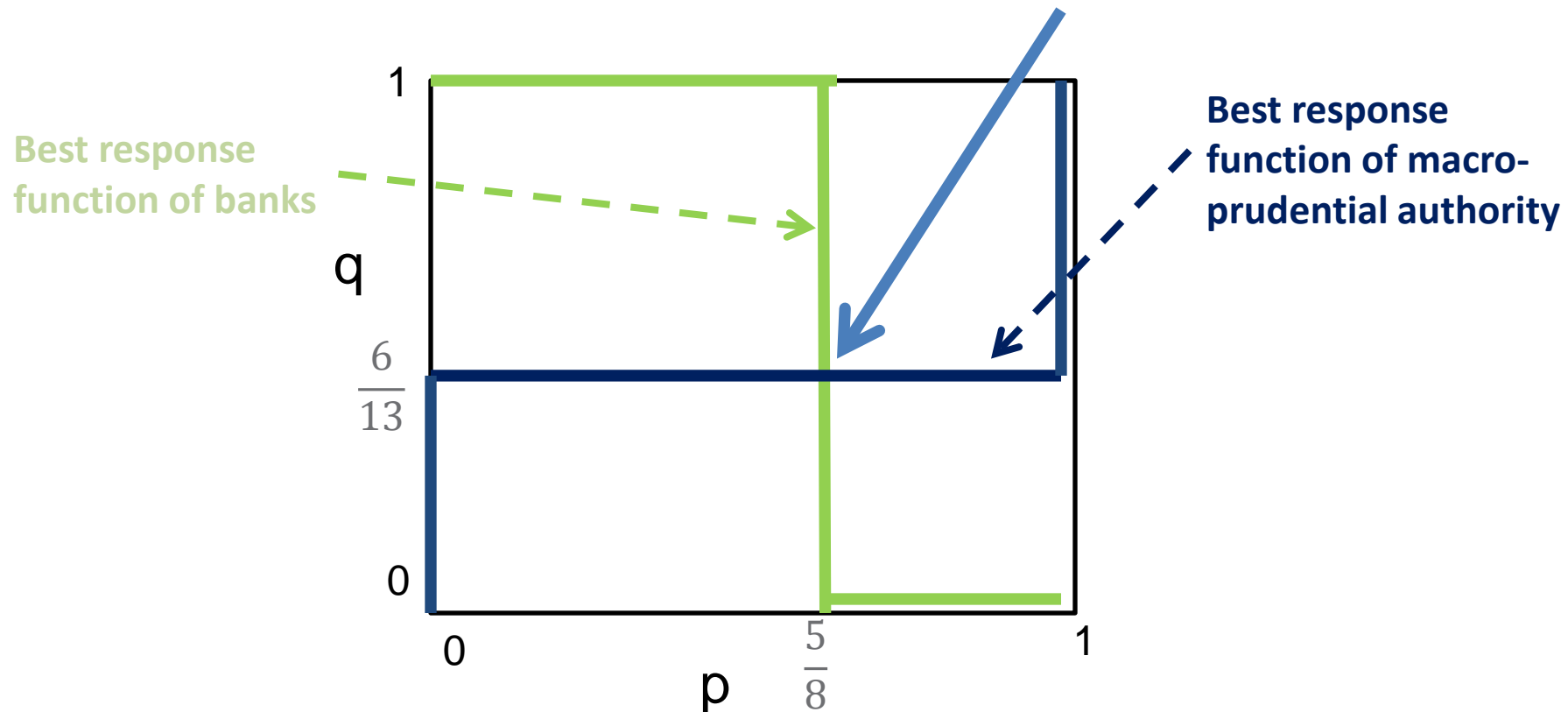


Best response function of macro-prudential authority



## 4. Theoretical study - Strategic interactions between macro-prudential authority and banks (cont')

Mixed strategy Nash equilibrium is  $(\frac{5}{8}a + \frac{3}{8}b, \frac{6}{13}\alpha + \frac{7}{13}\beta)$



## 5. Conclusions

- Any strategic interaction between macro-prudential authority and banks not accompanied by cooperation may lead to lower effectiveness and efficiency of macro-prudential measures
- Banks need the right incentives to pursue the long run financial stability of banking sector
- An integrated EU financial sector requires cross-border recognition (reciprocity) of national macro-prudential measures

# Thank you!

[Horatiu.Lovin@bnro.ro](mailto:Horatiu.Lovin@bnro.ro)

