

How Do Monetary, Micro and Macroprudential Policies Interact?

Donato Masciandaro

Bocconi University

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Motivation

- ❑ **How** Do Monetary, Micro and Macroprudential Policies Interact?
- ❑ The State of Art: **Two** Intertwined Narratives
- ❑ **Temporal** Narrative: Central Banking before and after the Great Crisis
- ❑ **Methodological** Narrative, with two perspectives: Traditional Economics and New Political Economy
- ❑ Bottom Line: The institutional **design** as **final outcome** of two different cost and benefit analyses, i.e.
- ❑ Both **economics** and **politics** matter

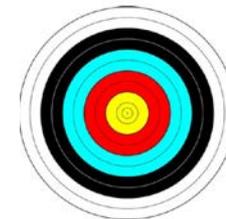
First Narrative - The Central Banker **before** the Crisis: Just a **Monetary** Player

- ❑ Given an **advanced** economy before the **Great Crisis**
- ❑ The **workhorse** model implies a crystal clear framework:
 - ❑ 1) Monetary Policy **Goal**: Macroeconomic Stability (Output Growth + Inflation)
 - ❑ 2) Monetary Policy **Tool**: Nominal Interest Rate
 - ❑ 3) Monetary Policy **Actor**: The Independent Central Bank



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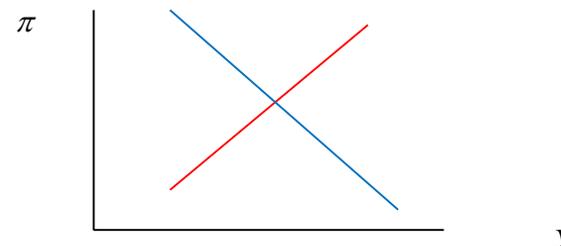


Goal: Macro Stability

- Letting y_t and z_t be respectively the logs of the stochastic component and the natural level of output, the output gap x_t will be $x_t \equiv y_t - z_t$ while π_t is the period inflation rate and i_t the nominal interest rate
- We have an aggregate supply curve that relates positively inflation and output gap which is coupled with an aggregate demand curve, where the output gap is inversely associated with the real interest rate:

$$\pi_t = \lambda x_t + \beta [E_t \pi_{t+1}] + u_t \quad (1)$$

$$x_t = E_t x_{t+1} - \phi [i_t - E_t \pi_{t+1}] + g_t \quad (2)$$



- Where u_t and g_t are standard disturbance terms that behave as follows:

$$u_t = \rho u_{t-1} + \hat{u}_t \quad g_t = \mu g_{t-1} + \hat{g}_t$$

- Where $0 \leq \rho, \mu \leq 1$ and \hat{u}_t, \hat{g}_t are random variables with zero means and finite variances.



Player: **Independent** Central Bank ...

- The **central bank** function targets the macroeconomic key variables and having as **standard bliss goals** the **natural level of output** and an **inflation target** – here zero without any loss of generality - and therefore assuming its basic form:

$$U_{cb} = \max - \frac{1}{2} E_t \left[\sum_{i=1}^{\infty} \beta^i (\delta \alpha x_{t+i}^2 + \pi_{t+i}^2) \right]$$

- Where the parameter α is the **relative weight** of the two macroeconomic goals. At the same time the parameter $0 < \delta \leq 1$ captures in the simplest way the explicit role of the **central bank independence**
- Being interested in zooming on the drivers of the monetary policy action different from the institutional setting, we will assume that $\delta = 1$, i.e. the degree of central bank independence is the maximum one.

... with a **Conservative** Central Banker



- Assuming rational **expectations**, in each period the solution of the optimization problem produces the following **optimality** condition in terms of **inflation**:

$$\pi_t = -\frac{\alpha}{\lambda} x_t$$

- When inflation is above the target, the central bank have to implement a restrictive policy monetary; the opposite is true when inflation is below the target.
- The toughness of the central bank reaction depends on the **sacrifice ratio** λ between gains in inflation control versus costs in term of output losses, as well as on the degree of the central bank dovishness α , i.e. how important is output stabilization respect to inflation stabilization.
- Dovishness is the opposite of **conservativeness (hawkishness)**, that we indicate using the parameter t

$$t = \frac{1}{\alpha}$$

Tool: The Interest Rate



- Finally, assuming that the monetary policy **tool** is the **interest rate** the formulation of the optimal policy will be equal to:

$$i_t^* = \gamma_\pi \rho \pi_t + \frac{1}{\varphi} g_t$$

- Where:

$$\gamma_\pi = 1 + \frac{(1-\rho)\lambda}{\rho\varphi\alpha} > 1$$

- Putting all the things **together** ...

Central Banking and Monetary Policy

- ❑ The **independent** central bank sets its **interest rate** policy following a **monetary rule**
- ❑ Where the more common one was the **Taylor Rule**
- ❑ - here $\alpha, \beta > 0$ are the hawkishness metrics

$$i_t^* = r + \pi_t + \alpha(\pi_t - \pi^*) + \beta x_t$$



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The Day after The Crisis: Two Big Macro Puzzles ...

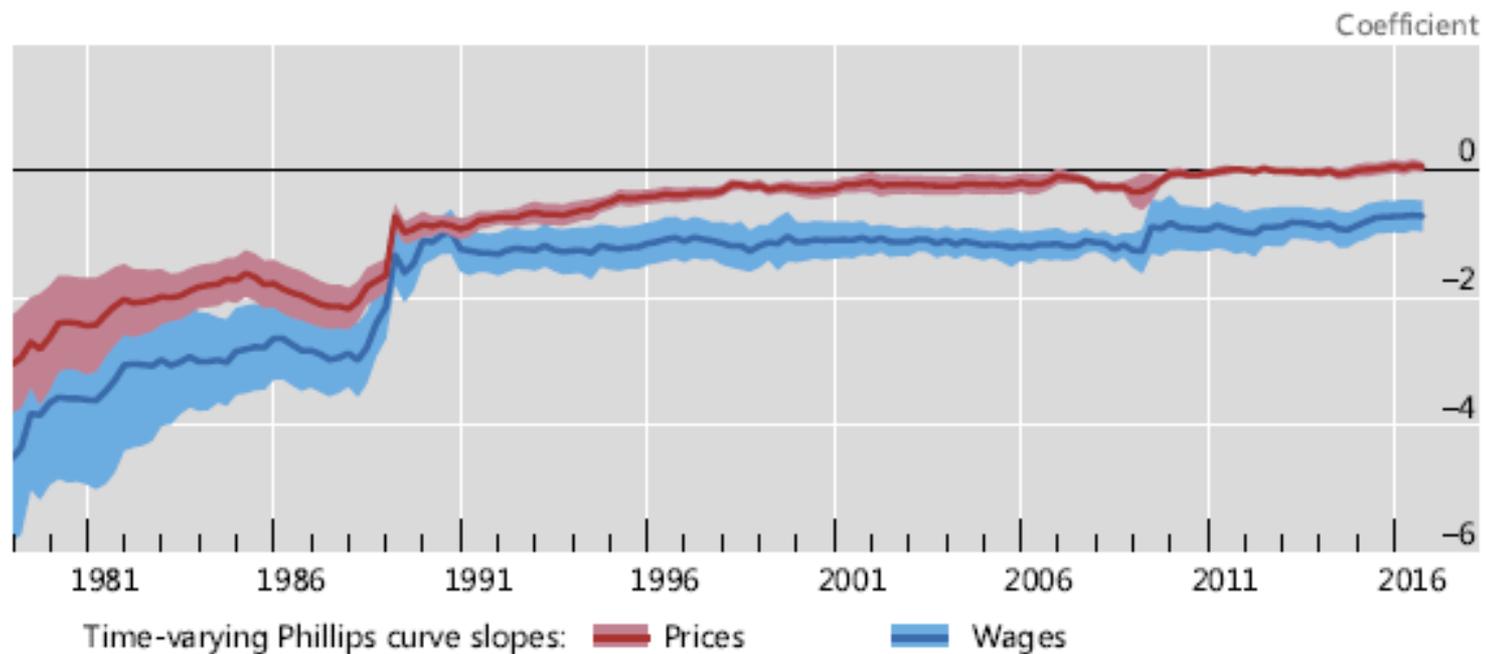
- ❑ In the aftermath of the Crisis **two** big **known unknowns** arises regarding the appropriateness of the mainstream macroeconomic models:
- ❑ 1) the relationships between **nominal** and **real variables**, i.e. between inflation, nominal wages, output gap and employment
- ❑ 2) the relationships between **finance** and **real economy**



i.e. the **missing Phillips Curve** and ...

A flatter Phillips curve for prices and (less so) wages¹

Graph 3



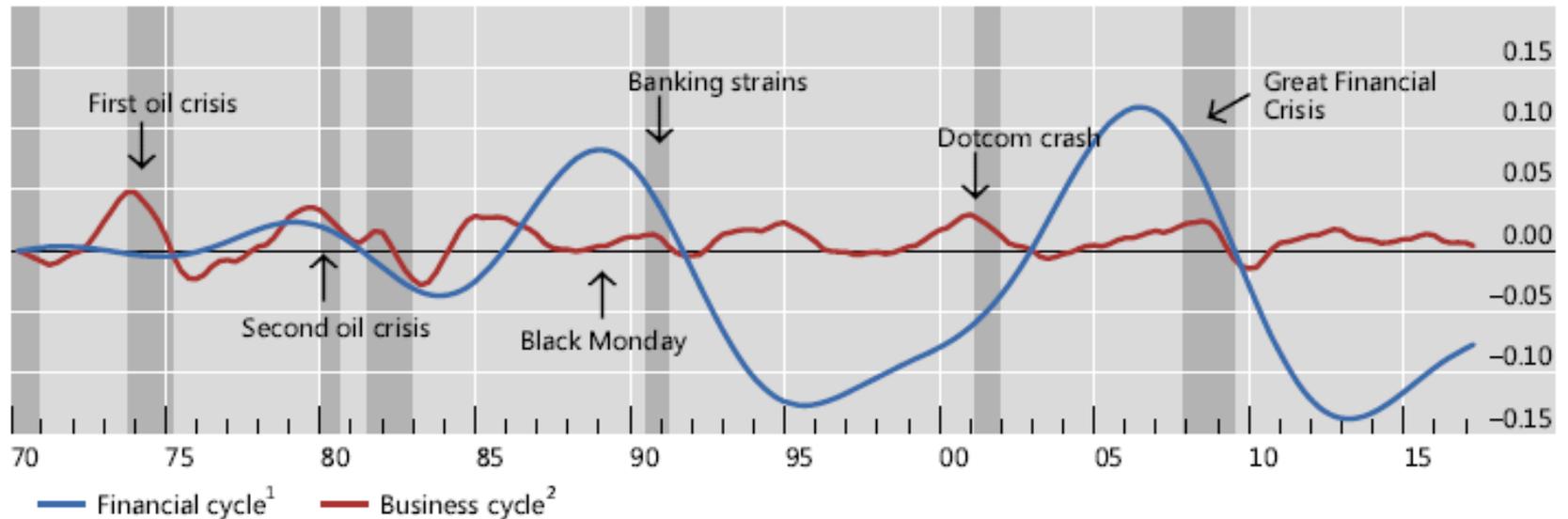
¹ Rolling 15-year window estimates from panel of G7 economies. See source for details.

Source: Borio (2017a).

the Finance and Growth Puzzle

Financial and business cycles in the United States

Graph 1



¹ The financial cycle as measured by frequency-based (bandpass) filters capturing medium-term cycles in real credit, the credit-to-GDP ratio and real house prices. ² The business cycle as measured by a frequency-based (bandpass) filter capturing fluctuations in real GDP over a period of one to eight years.

Source: Drehmann et al (2012), updated.

... Central Banking and **Financial Stability**

- ❑ Zooming on the **second** puzzle,
- ❑ Since the Great Crisis, promoting financial stability has been even more a general priority
- ❑ In thinking about ways to prevent financial disasters in the future, it has been natural to look again at the relationship between central banking and **financial stability**
- ❑ And then the crucial **question** arises ...

Monetary Policy and Prudential Policies

- ❑ **How** Monetary, Micro and Macro Prudential Policies have to be intertwined?
- ❑ **So far** the scientific literature offers **two** main and **contradictory** perspectives, which can be summarised as **opposite** answers to the above question
- ❑ **Why?** The topic involves a series of:
 - ❑ Known **Knows**
 - ❑ Known **Unknowns**
 - ❑ And perhaps also:
 - ❑ Unknown Unknowns
- ❑ **On top** of that a **second** narrative arises:
- ❑ **Economics** versus **New Political Economy**

Economics: The **Integration** View

- ❑ Regarding the **financial stability** goal
- ❑ The **integration view** suggests that:
 - ❑ 1) The more the **central bank** gains **information advantages**, the more its **leading role** in the definition and implementation of supervision is supported
 - ❑ This position is based on the fact that the central banker is the country's **liquidity manager**, and that he/ she obtains information on the health of the banking and financial system by carrying out that role
 - ❑ 2) The central bank's leading role in supervision is also supported by arguments related to the **skill advantages** and **economies of scale** that derive from bringing all functions together under the same umbrella

Economics: The **Separation** View

- ❑ The **separation** view claims that the opposite could be true
- ❑ 1) **If** the central bank is the **leading supervisor**, there is a risk that the instruments of one policy can be assigned to the wrong objectives (**tool miss-allocation**)
- ❑ **Relevance**: Such as risk is likely high, given that so far we **don't know** the signs and the size of interactions among the **three** key functions (**monetary**, **macroprudential** and **microprudential** policies)
- ❑ 2) At the same time, when the central bank is the main actor responsible for maintaining financial stability, the risk of **financial dominance** – the likelihood that financial stability concerns will undermine the central bank's credibility and effectiveness as the monetary authority – can increase (**goal capture**)

Economics: The Separation View and Micro Powers

- ❑ Regarding the central bank role as micro supervisor:
- ❑ 1) Shortcomings can occur if the central bank is not the micro supervisor.
- ❑ The less the central bank is involved as the micro supervisor, the less it is likely to be its information set on the health of individual banking firms and, consequently, the higher will be the likelihood of mistakes as macro supervisor (information deficit)
- ❑ At the same time:
- ❑ 2) The more the central bank is also the micro supervisor the more likely are the risks of capture by banks
- ❑ All in all: the overall effect of the role of the central bank as a supervisor is ambiguous
- ❑ And what about the monetary policy action? Coming back to our workhorse model ...

Economics: Monetary Policy and Financial Stability

- ❑ In general, monetary policy and financial stability are **associated**, but so far their true relationship is **unknown**
- ❑ On the one hand, for any level of the inflation rate, the **expected benefits** depend on uncertain gains from central bank involvement in financial stability issues
- ❑ On the other hand, **expected losses** from the involvement of the central banker in financial stability can occur
- ❑ Then the crucial variable becomes the **central bank knowledge**
- ❑ The **more** the central bank know the **distribution** of both benefits and costs – i.e. the variable Ψ - the **better** will be its involvement in pursuing financial stability
- ❑ In other words the monetary policy action will be also associated with the **central bank knowledge** on **financial stability**:

$$\pi_t = (\delta, \alpha, \lambda, \psi)$$

Monetary Policy: The “New Normal” ?

- **With** such as knowledge, a “**new normal**” framework could be established, **including** financial stability issues
- For example, using an **augmented** Taylor Rule formulation:

$$i_t^* = r + \pi_t + \alpha(\pi_t - \pi^*) + \beta x_t + \gamma(l_t - l^*)$$

- General Question: How **strong/realistic** is the above assumption?
- On top of that the **second narrative** emerges ..

Political Economy: Politicians, Central Bank and Financial Stability

- ❑ The perspective provided by political economics is based on the hypothesis that the **gains and losses** of a given **prudential regime**, including the role assigned to the central bank, are variables computed by the **incumbent policymaker**
 - ❑ who maintains or reforms any institutional setting in line with his or her own preferences
 - ❑ Then the crucial driver of the actual role of the central bank is the **political** cost and benefit analysis
 - ❑ The politicians evaluated the **central bank role** from their own perspective, weighting the expected costs and benefits
 - ❑ For **example**: If the central bank plays a leading role as a supervisor, its **overall powers** are likely to increase
 - ❑ Then politicians may fear the creation of an overly **powerful independent bureaucracy**

Empirics: Central Bank Involvement in Financial Stability Architectures

- ❑ An **empirical** question arises: Is it possible to identify **common drivers** that explain political decisions concerning central bank involvement prudential governance?
- ❑ An **econometric** cross-sectional analysis of the determinants of central bank involvement in **macroprudential governance** (Masciandaro and Volpicella 2016) shed light on this issue by testing different assumptions made in the theoretical and institutional literature

Empirics: Data and Metrics (1/2)

- ❑ The empirical analysis is based on data collected for **31** countries that are heterogeneous in terms of institutional framework and stage of economic development
- ❑ In order to shed light on the drivers that have recently influenced the build-up of macroprudential settings, **qualitative** information must first be transformed into **quantitative** variables
- ❑ **Two** main indicators can be used to measure the key features of the central bank's role in financial supervision. The central bank's involvement in **macro supervision** is our dependent variable in the econometric tests, while the central bank's role as a **micro supervisor** serves as a proxy for the role of the central bank as the leading authority in micro supervision

Empirics: Data and Metrics (2/2)

- ❑ On top, it is necessary to measure **two potential shortcomings** associated with deep central bank involvement in macro supervision:
- ❑ too much **bureaucratic independence** in the institutional setting
- ❑ and **excessive discretion** in defining monetary policy
- ❑ In other words,
- ❑ an **institutional indicator** is needed that serves as a proxy for central bank independence, and
- ❑ a **policy indicator** that summarises the degree of discretion in the conduct of monetary policy is also necessary

FIGURE 1 CENTRAL BANKS AS MACRO SUPERVISORS

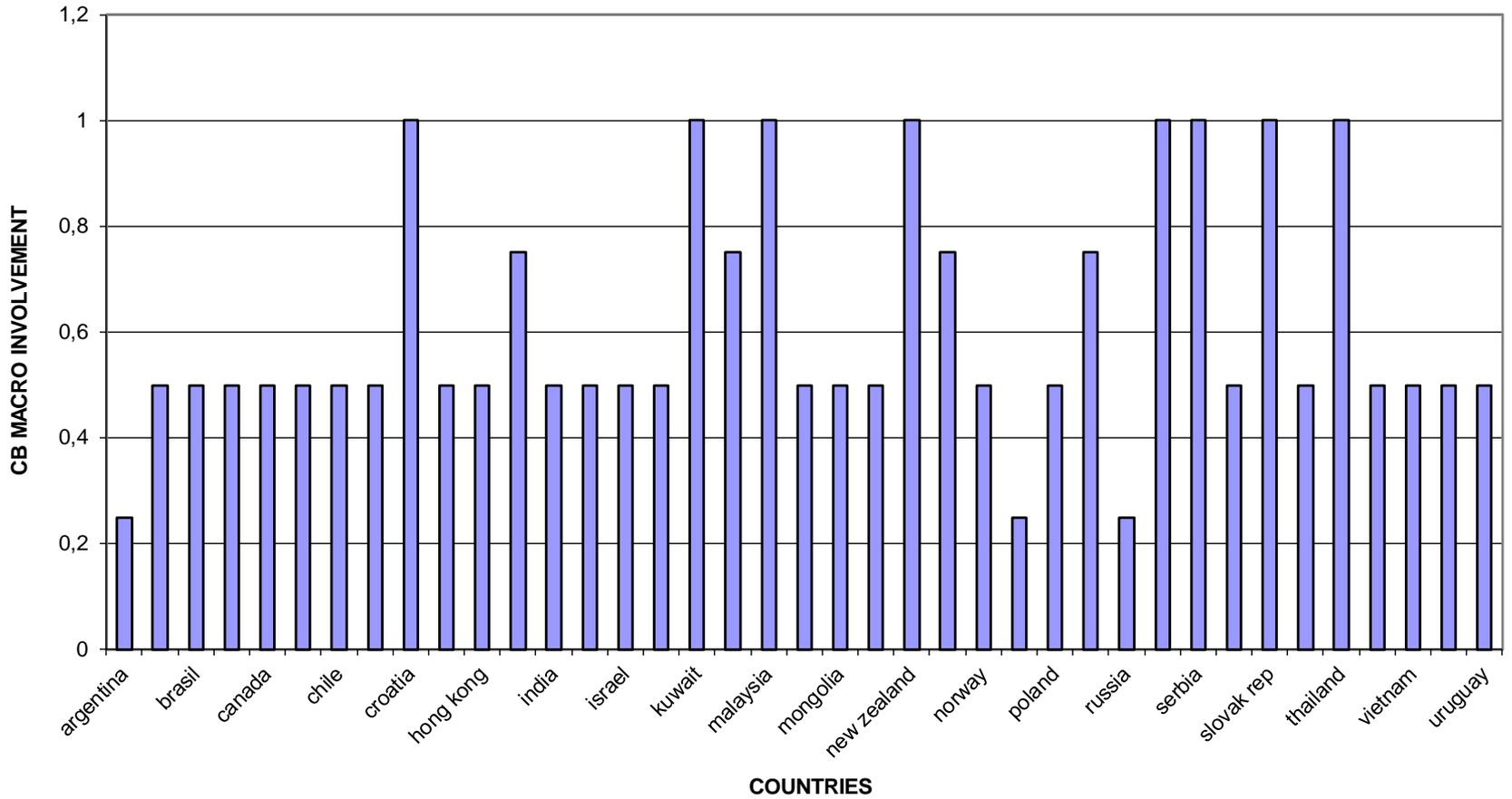


FIGURE 2 CENTRAL BANKS AS MICRO SUPERVISORS

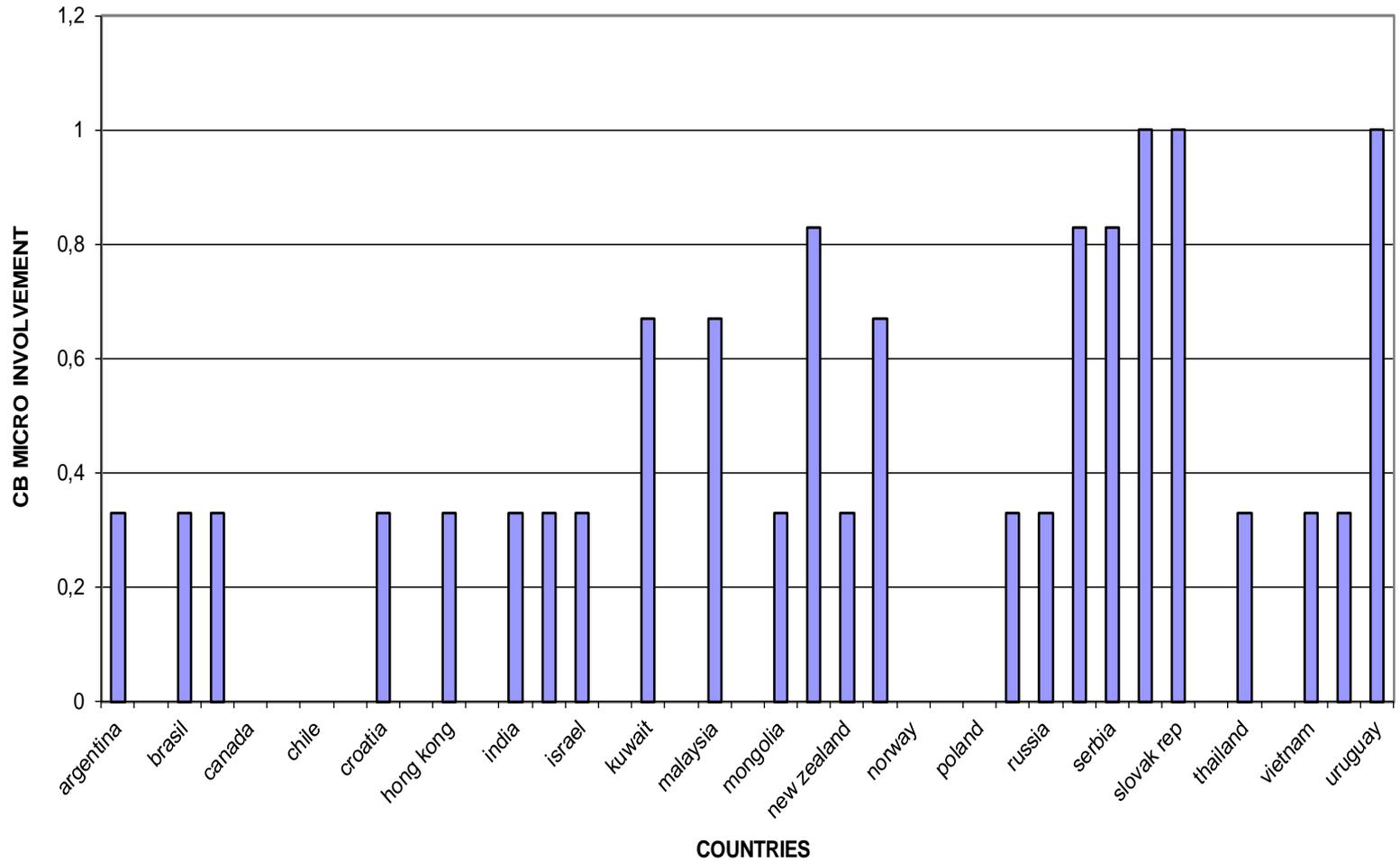
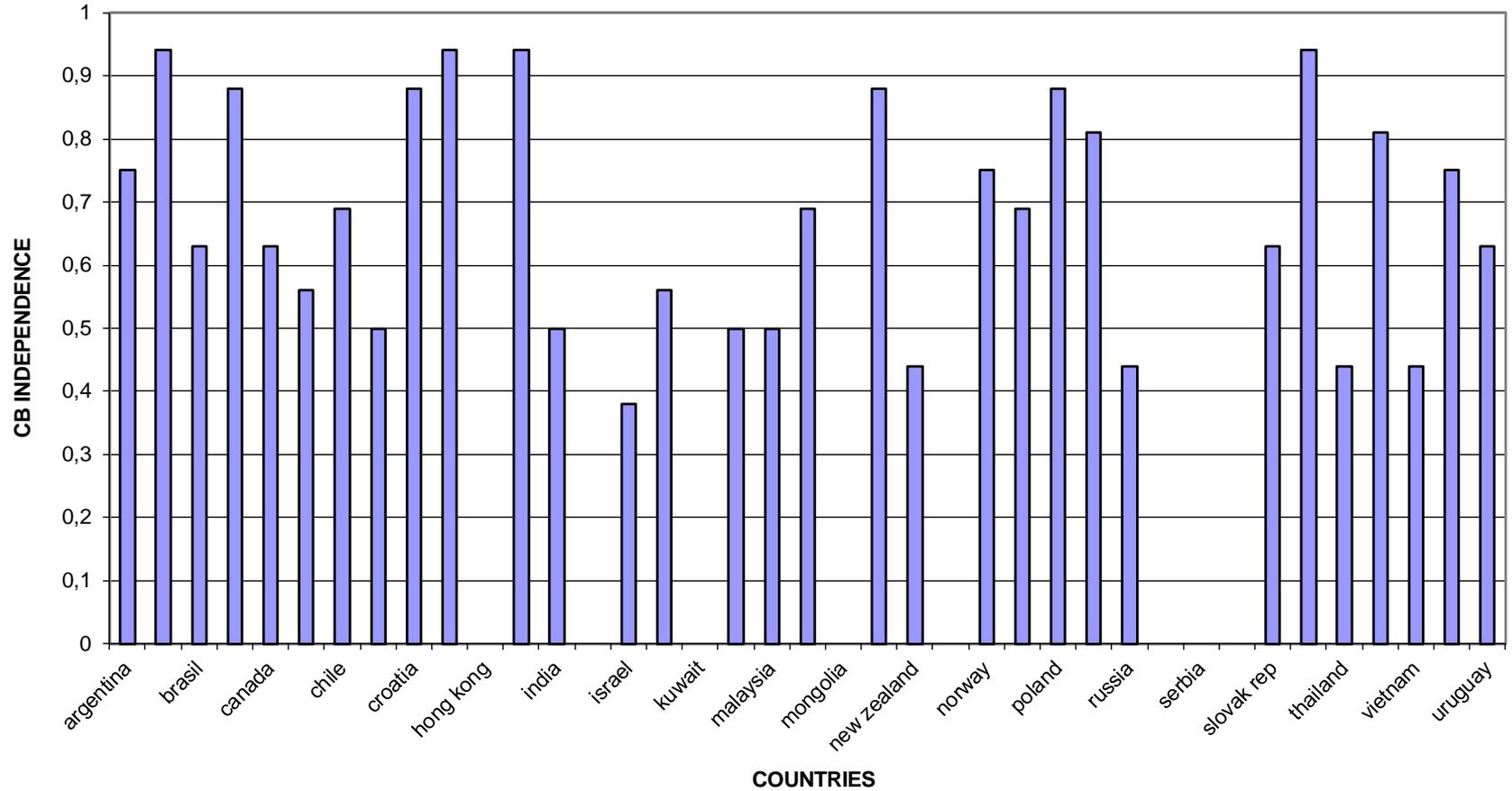


FIGURE 3 CENTRAL BANK INDEPENDENCE



Empirics: Results

- ❑ The empirical results indicate that:
- ❑ 1) central banks **acting as micro supervisors** of the banking industry are **more likely** to be given more **macroprudential** powers
- ❑ 2) **higher** central bank **political independence** is associated with **lower involvement** in macro supervision and
- ❑ 3) central banks pursuing specific price-stability objectives - **higher tool independence** - are **more likely** to be endowed with macro supervisory responsibilities
- ❑ Interpreting these results using a **political economy perspective** ...

Empirics: A **Political Economy** Interpretation

- ❑ Results and interpretations:
- ❑ 1) The central bank's role as a **micro** supervisor of the banking industry is a **significant** driver of its macroprudential involvement
- ❑ Interpretation: Politicians appreciate the **information advantages** available to the central bank
- ❑ 2) Greater central bank **political independence** is associated with **fewer** macro supervisory powers
- ❑ Interpretation: Politicians dislike the risks of **overly powerful central banks**
- ❑ 3) Rule-based monetary policy focused on **inflation targeting increases** the odds of a central bank being involved in macro supervision
- ❑ Interpretation: Politicians dislike **discretionary** central banks

Conclusion

- ❑ How Do Monetary, Micro and Macroprudential Policies Interact?
- ❑ The State of **Art**: **Two** Intertwined Narratives
 - ❑ **Temporal** Narrative: Central Banking before and after the Great Crisis
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- ❑ Bottom Line: The **institutional** design as final **outcome** of two different cost and benefit analyses, i.e.
 - ❑ 1) **Both** economics and politics matter
 - ❑ 2) And **one size doesn't fit all**

