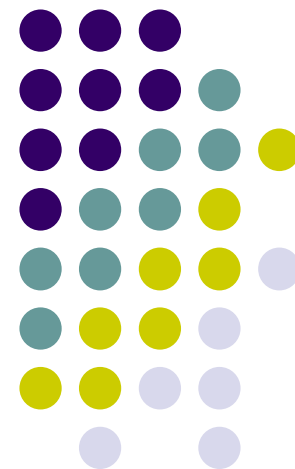


# Central banks' preferences and banking sector vulnerability

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# Agenda

- 1) Introduction and motivation
- 2) From central banks' preferences to the benign neglect
- 3) Data
- 4) Methodology and results
- 5) Robustness checks
- 6) Conclusion and extensions



## Introduction & motivation

- Since the 1980s, price stability has become the sacred objective of monetary policy
- This top priority objective refers to the adherence of numerous economists and central bankers to the **divine coincidence** (Blanchard and Gali, 2007): under price stickiness, any monetary policy rule that stabilizes the inflation rate (in the face of preference or technology shocks) also stabilizes the output gap
- It was also widely accepted that price stability implies financial stability → **Schwartz's "conventional wisdom"** (1995)
- Then, price stability would be a sufficient condition for macroeconomic and financial stability

# Introduction & motivation



- This led to the “**Jackson Hole Consensus**” and “**the cleaning up (the bust) afterwards**” strategy
- However, a lot of financial crises were not preceded by a period of price instability (**White, 2006**)
- Moreover, the recent dramatic crisis occurred in a context of Great Moderation
- **This called into question the Schwartz’s conventional wisdom**



## Introduction & motivation

- On the contrary, with monetary policy primarily focused on price stability, systemic financial risk was largely undressed
- In turn, financial stability has undermined macroeconomic stability (despite low inflation)
- **Christiano et al. (2010)**: as inflation remains stable during periods of stock booms, while credit sharply increases, a central bank excessively focused on inflation overlooks the financial imbalances that such a policy contributes to exacerbate
- **De Grauwe (2010)**: “by focusing almost exclusively on price stability, the ECB put too little emphasis on trying to clamp down on the emerging bubbles and the explosion of bank credit” → divine coincidence has retrospectively revealed to be **benign neglect**

# Introduction & motivation



- However, there is **little empirical research** on the link between price and financial stability:
  - **Blot et al. (2015)**: reject the hypothesis that price stability is positively correlated with financial stability
  - **Frappa et Mésonnier (2010)**: positive, significant and robust link between the adoption of inflation targeting in developed countries and real house price growth and house price-to-rent ratio → **inflation nutters...?** (King, 1997)
  - **Lin (2010)**: adoption of inflation targeting leads to higher exchange rate volatility in industrial countries
- Theoretically, **Berger and Kissmer (2013)** show that the more independent central bankers are, the more likely it is that they refrain from implementing preemptive monetary tightening to maintain financial stability



## Introduction & motivation

- **Objective of the paper:** empirically testing the Schwartz hypothesis vs the benign neglect hypothesis  
→ the higher the priority given to the inflation stabilization goal, the higher (or lower) is the banking sector vulnerability?
- **Central bank preferences** (i.e. the priority given to the inflation goal) are proxied by the index proposed by **Levieuge and Lucotte (2014)**, which is a measure of **central bank conservatism** (i.e. of central bank's inflation aversion)
- **Banking sector vulnerability** proxied by 6 alternative measures widely used in the Early Warning System literature (credit and banks' balance sheet structures)

# From central banks' preferences to the benign neglect



- Why a high degree of central banks' conservatism (i.e. inflation aversion) can exacerbate financial and banking vulnerabilities?

→ 3 main reasons:

- 1) **The risk-taking channel**: in a context of Great Moderation, focusing on inflation implies a loose monetary policy stance, and then increases the systemic risk (see, e.g., Rajan, 2005; Borio and Zhu, 2009; Adrian and Shin, 2010; Diamond and Rajan, 2012)



# From central banks' preferences to the benign neglect

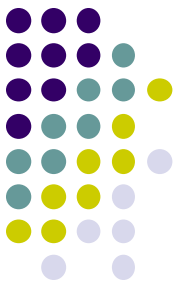


2) A central bank which is concerned by the output objective should also take care of financial developments

→ because asset prices changes and financial shocks have an impact on the economic activity:

- Wealth effects
  - Tobin's Q ratio
  - Financial accelerator
  - Bank capital channel
  - Exchange rate channel
- 
- Regarding the **Taylor curve**, this means that more aversion to inflation implies less focus on output, and then less focus on the financial and banking sector

# From central banks' preferences to the benign neglect



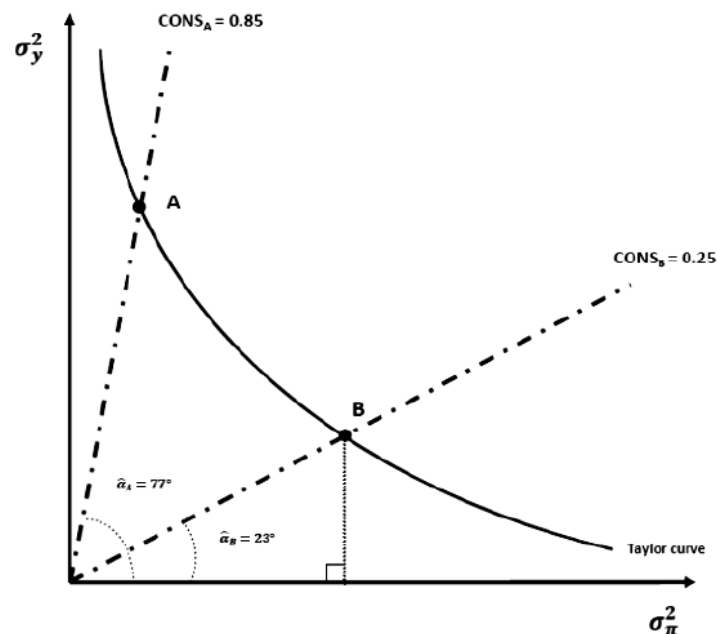
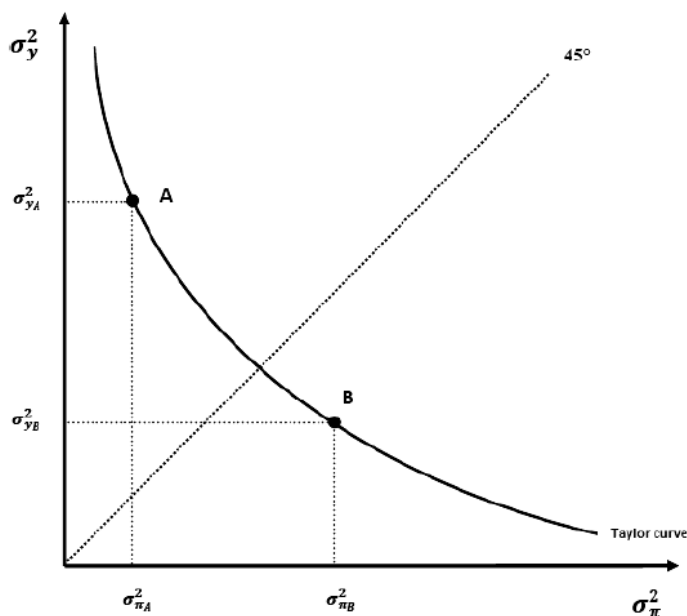
## 3) Potential conflict of objectives:

- The existence of a potential conflict of objectives, in a legal and institutional context that gives the top priority to inflation stabilization, has encouraged the benign neglect
- See [Oosterloo and De Haan \(2004\)](#) and [BIS \(2009\)](#): the objective(s) of financial stability are clearly and explicitly stated in the law. If this objective is mentioned, the understanding of what it entails is vague: “promote”, “contribute to” financial stability  
→ this implies little commitment and responsibility with respect to this goal (contrary to inflation goal...)
- Furthermore, in such a context, a conservative central bank is less prone to encourage the implementation of prudential measures (that could conflict with the inflation objective)

# Data



- 1) **Measuring central bank preferences (i.e. inflation aversion):**
    - The measure proposed by **Levieuge and Lucotte (2014)** is based on the Taylor curve: position of an economy on this curve gives information on the degree of central bank conservatism
- point A: central bank more adverse to inflation variability than for the point B ( $\sigma_{\pi A}^2 < \sigma_{\pi B}^2$ )



# Data



- Then, knowing empirical volatilities of inflation and output gap, it is possible to calculate the angle that joins the origin and a given point on the Taylor curve
- Formally, the index of central bank conservatism imagined by [Levieuge and Lucotte \(2014\)](#) is:

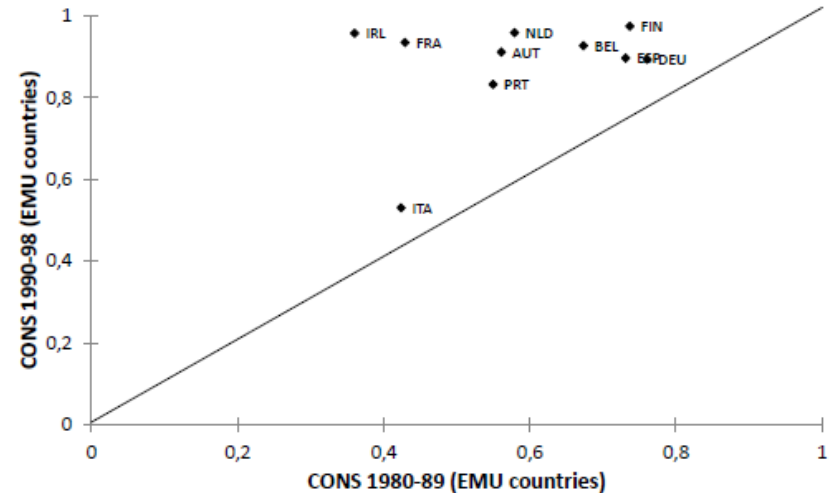
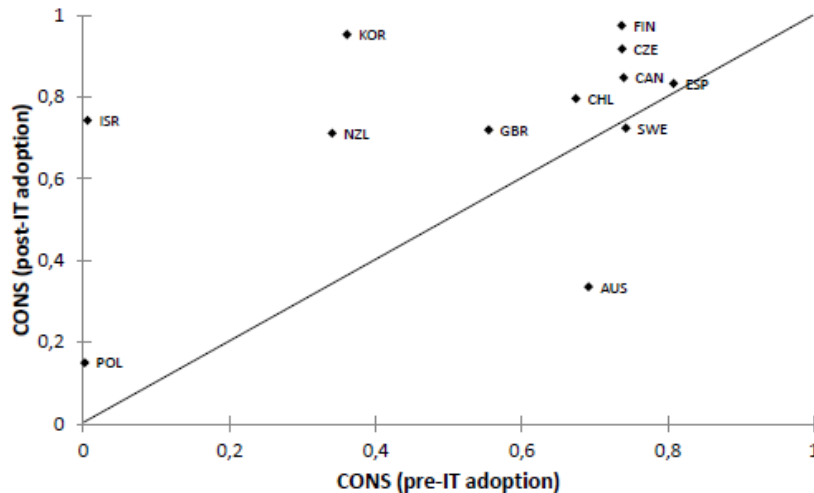
$$CONS = \frac{1}{90} \left[ atan \left( \frac{\sigma_y^2}{\sigma_\pi^2} \right) \times \frac{180}{\pi} \right]$$

- The higher the *CONS* index is, the higher is the degree of central bank conservatism → **advantages of such an index**: time-varying and not “model-dependent” (not necessary to impose any assumptions concerning the monetary policy rule or strategy that a central bank follows, see e.g., [Krause and Méndez, 2005](#))

# Data



- Is *CONS* index consistent with the monetary history of OECD countries? (see [Levieuge and Lucotte, 2014](#) for a detailed discussion concerning the accuracy of the index)



Source: Levieuge and Lucotte (2014)

- In the present paper, *CONS* index is extended to 73 countries from 1980 to 2012



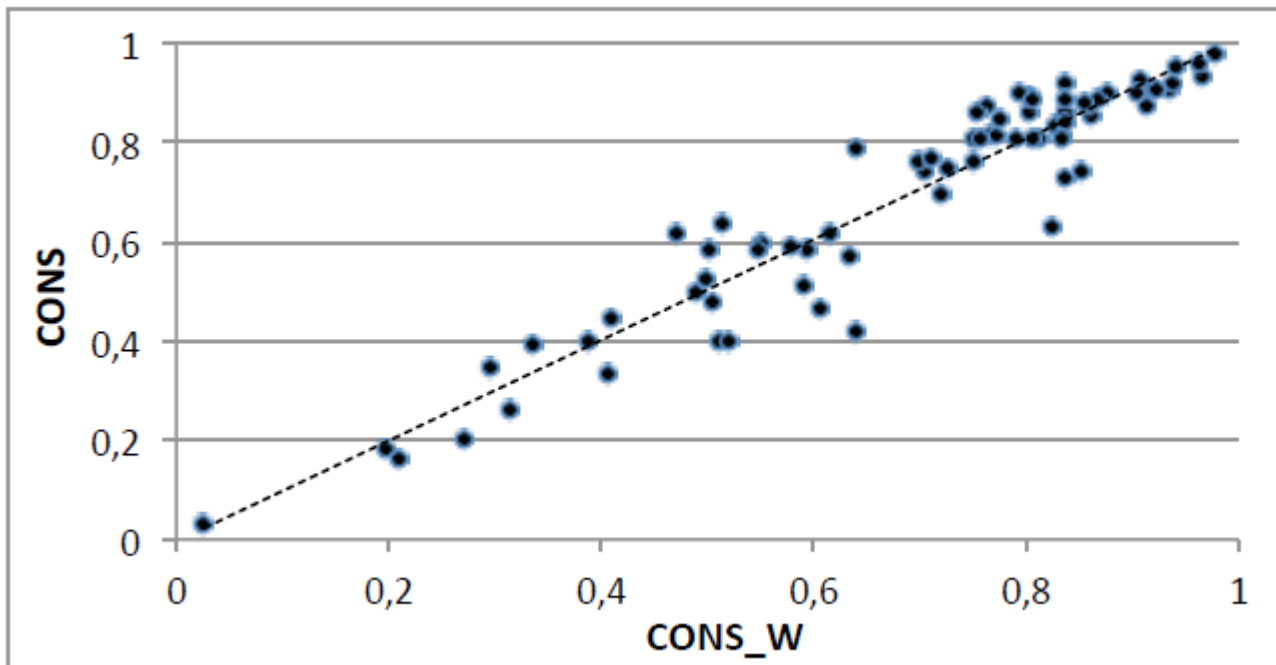
## Data

- However, as highlighted by [Levieuge and Lucotte \(2014\)](#), any change in CONS can be the result of disturbances, outside the willingness of the central bank to change its preferences  
→ important point as our sample includes emerging countries that are known to be subject to shocks
- To this respect, [Levieuge and Lucotte \(2014\)](#) have proposed an alternative indicator, labelled *CONS\_W* (“W” for weighted), where the ratio  $\sigma_y^2/\sigma_\pi^2$  is weighted by the ratio of disturbances:

$$CONS\_W = \frac{1}{90} \left[ atan \left( \frac{\sigma_y^2/\sigma_\pi^2}{\sigma_{\varepsilon y}^2/\sigma_{\varepsilon \pi}^2} \right) \times \frac{180}{\pi} \right]$$

- $\sigma_{\varepsilon y}^2$  and  $\sigma_{\varepsilon \pi}^2$  are the variance of demand and supply shocks, respectively (decomposition based on [Blanchard and Quah, 1989](#)) <sup>14</sup>

# Data



**Correlation between CONS and CONS\_W (decade average)**

# Data



## 2) Measures of banking sector vulnerability:

- *Credit-to-GDP gap* (an advance signal of banking turmoil) and *credit volatility*: Borio and Lowe, 2002, 2004; Borge et al., 2009; Schularick and Taylor, 2012; Giese et al., 2014
- *Aggregate Z-score* (measures the distance from insolvency – inverse proxy for banking sector vulnerability): Demirgüç-Kunt et al., 2008; Laeven and Levine, 2009; Beck et al., 2010
- *Credit-to-deposit ratio* (good predictor of financial distress): Ratnovski and Huang, 2009; Caprio et al., 2014
- *Bank capital-to-assets ratio* (measure of banking system vulnerability): Beltratti and Stulz, 2012
- *Non performing loans to total gross loans ratio* (proxy for banks assets quality): Cihak and Schaeck, 2010

→ variables which belong to the “*financial soundness indicators*” of the IMF



# Data



## 3) Control variables:

- *Supply and demand shocks*: capture economic shocks that hit the banking sector
- *Real GDP per capita*: captures heterogeneity between industrial and emerging economies
- *Lerner index and banking sector concentration*: “competition fragility” view vs “competition-stability” view (see, e.g., Beck, 2008; Leroy and Lucotte, 2015)
- *Financial openness (Chinn-Ito index)*: large exposure to international financial shocks (Giannone et al., 2011)
- *Financial liberalization index* (Abiad et al., 2009): lax regulation leads to more bank risk-taking (Kaminsky and Reinhart, 1999; Giannone et al., 2011)

# Methodology and results



- To assess the link between the degree of central bank conservatism and the vulnerability of the banking sector, we estimate the following equation for a sample of 73 countries from 1980 to 2012:

$$Y_{i,t} = \alpha + \beta CBP_{i,t} + \gamma_1 \sigma_{i,t} + \gamma_2 X_{i,t-1} + \delta_i + \delta_t + \epsilon_{i,t}$$

- $Y_{i,t}$ : alternative measures of banking sector vulnerability
- $CBP_{i,t}$ : indicator of central bank conservatism [CONS or CONS\_W] (calculated using 5-year moving inflation and output gap volatilities, because central banks preferences are not likely to radically change in the short run)
- $\sigma_{i,t}$ : vector of supply and demand shocks' variances
- $X_{i,t-1}$ : vector of other control variables (lagged to limit potential endogeneity issue)
- $\delta_i$  and  $\delta_t$ : country and time fixed effects
- $\epsilon_{i,t}$ : error term

# Methodology and results



| Dependent variable        | Credit volatility    |                       |                         | Credit-to-GDP gap    |                       |                        |
|---------------------------|----------------------|-----------------------|-------------------------|----------------------|-----------------------|------------------------|
|                           | (1)                  | (2)                   | (3)                     | (1)                  | (2)                   | (3)                    |
| <b>CONS</b>               | 21.899**<br>(11.018) | 72.966***<br>(23.357) | 48.586***<br>(15.776)   | 15.282***<br>(2.717) | 15.405***<br>(3.604)  | 16.013***<br>(5.822)   |
| Variance of supply shocks | -2.525<br>(4.404)    | -1.931<br>(9.708)     | -4.512<br>(6.199)       | 0.857<br>(1.085)     | -0.694<br>(1.487)     | 0.819<br>(2.288)       |
| Variance of demand shocks | 6.336<br>(4.295)     | 8.396<br>(8.444)      | 4.528<br>(6.371)        | -3.051***<br>(1.053) | -2.674**<br>(1.306)   | -6.285***<br>(2.351)   |
| GDP per capita            | -0.051<br>(0.097)    | -0.192<br>(0.303)     | -0.067<br>(0.251)       | 0.019<br>(0.025)     | 0.138***<br>(0.050)   | 0.456***<br>(0.093)    |
| Lerner index              |                      | -85.748**<br>(42.438) | -70.582***<br>(26.077)  |                      | 20.855***<br>(6.648)  | 4.420<br>(9.624)       |
| Bank concentration        |                      | 0.019<br>(0.347)      | -0.255<br>(0.247)       |                      | -0.054<br>(0.057)     | -0.130<br>(0.091)      |
| Financial openness        |                      |                       | 11.791<br>(26.484)      |                      |                       | -0.477<br>(9.774)      |
| Financial liberalization  |                      |                       | -245.911***<br>(81.036) |                      |                       | 43.525<br>(29.907)     |
| Constant (a)              | 3.181<br>(50.913)    | -2.339<br>(46.411)    | 204.093**<br>(81.070)   | 20.088<br>(13.864)   | -24.489***<br>(7.368) | -98.434***<br>(29.920) |
| Observations              | 873                  | 460                   | 282                     | 997                  | 564                   | 282                    |
| R-squared                 | 0.047                | 0.074                 | 0.140                   | 0.144                | 0.229                 | 0.242                  |
| Number of countries       | 73                   | 55                    | 43                      | 73                   | 56                    | 43                     |
| <b>CONS_W</b>             | 27.396**<br>(10.764) | 78.508***<br>(24.142) | 52.334***<br>(16.250)   | 12.634***<br>(2.682) | 13.129***<br>(3.713)  | 17.784***<br>(5.993)   |
| Variance of supply shocks | 1.098<br>(4.672)     | 8.262<br>(10.039)     | 2.334<br>(6.471)        | 2.444**<br>(1.153)   | 1.103<br>(1.541)      | 3.138<br>(2.386)       |
| Variance of demand shocks | 2.797<br>(4.350)     | -3.101<br>(8.886)     | -4.325<br>(6.429)       | -4.763***<br>(1.064) | -4.696***<br>(1.345)  | -9.254***<br>(2.371)   |
| GDP per capita            | -0.056<br>(0.096)    | -0.163<br>(0.303)     | -0.033<br>(0.251)       | 0.026<br>(0.025)     | 0.145***<br>(0.051)   | 0.468***<br>(0.093)    |
| Lerner index              |                      | -75.460*<br>(42.305)  | -67.923***<br>(26.006)  |                      | 22.195***<br>(6.703)  | 5.290<br>(9.590)       |
| Bank concentration        |                      | 0.079<br>(0.349)      | -0.231<br>(0.247)       |                      | -0.050<br>(0.058)     | -0.120<br>(0.091)      |
| Financial openness        |                      |                       | 10.248<br>(26.440)      |                      |                       | -1.004<br>(9.750)      |
| Financial liberalization  |                      |                       | -255.003***<br>(80.583) |                      |                       | 40.725<br>(29.717)     |
| Constant (a)              | 2.200<br>(50.694)    | -12.063<br>(47.308)   | 206.214**<br>(80.505)   | 22.115<br>(13.914)   | -23.759***<br>(7.580) | -98.405***<br>(29.688) |
| Observations              | 874                  | 460                   | 282                     | 998                  | 564                   | 282                    |
| R-squared                 | 0.050                | 0.076                 | 0.143                   | 0.135                | 0.220                 | 0.246                  |
| Number of countries       | 73                   | 55                    | 43                      | 73                   | 56                    | 43                     |

# Methodology and results



| Dependent variable        | Credit-to-deposit ratio |                       |                       | Nonperforming loans ratio |                      |                       |
|---------------------------|-------------------------|-----------------------|-----------------------|---------------------------|----------------------|-----------------------|
|                           | (1)                     | (2)                   | (3)                   | (1)                       | (2)                  | (3)                   |
| <b><i>CONS</i></b>        | 18.884***<br>(5.456)    | 30.933***<br>(5.777)  | 24.822***<br>(9.180)  | 6.539***<br>(1.378)       | 7.176***<br>(1.417)  | 3.528**<br>(1.702)    |
| Variance of supply shocks | -10.248***<br>(2.182)   | -3.101<br>(2.341)     | -3.135<br>(3.557)     | 0.705<br>(0.499)          | 1.124**<br>(0.562)   | 0.744<br>(0.658)      |
| Variance of demand shocks | -3.580*<br>(2.140)      | -3.508<br>(2.155)     | -5.792<br>(3.659)     | 2.354***<br>(0.479)       | 2.317***<br>(0.500)  | 1.565**<br>(0.689)    |
| GDP per capita            | 0.318***<br>(0.050)     | 0.258***<br>(0.082)   | 0.795***<br>(0.158)   | 0.082***<br>(0.017)       | 0.107***<br>(0.019)  | 0.090***<br>(0.027)   |
| Lerner index              |                         | 19.817*<br>(10.640)   | 10.600<br>(15.472)    |                           | -9.347***<br>(2.526) | -4.308<br>(2.820)     |
| Bank concentration        |                         | -0.197**<br>(0.090)   | -0.241<br>(0.151)     |                           | -0.012<br>(0.022)    | 0.063**<br>(0.027)    |
| Financial openness        |                         |                       | -27.446*<br>(15.219)  |                           |                      | -0.488<br>(2.815)     |
| Financial liberalization  |                         |                       | 100.466**<br>(46.579) |                           |                      | -21.858**<br>(8.636)  |
| Constant (a)              | 23.148<br>(26.774)      | 61.077***<br>(11.710) | -64.114<br>(46.604)   | -11.083***<br>(2.634)     | -9.605***<br>(2.960) | 7.161<br>(8.654)      |
| Observations              | 939                     | 525                   | 272                   | 607                       | 532                  | 274                   |
| R-squared                 | 0.150                   | 0.229                 | 0.226                 | 0.303                     | 0.349                | 0.501                 |
| Number of countries       | 72                      | 55                    | 42                    | 65                        | 54                   | 41                    |
| <b><i>CONS_W</i></b>      | 13.406**<br>(5.359)     | 23.487***<br>(5.965)  | 25.105***<br>(9.391)  | 6.328***<br>(1.409)       | 6.398***<br>(1.468)  | 4.030**<br>(1.752)    |
| Variance of supply shocks | -8.614***<br>(2.302)    | 0.210<br>(2.432)      | 0.166<br>(3.720)      | 1.575***<br>(0.525)       | 1.984***<br>(0.584)  | 1.268*<br>(0.689)     |
| Variance of demand shocks | -5.529**<br>(2.159)     | -7.639***<br>(2.238)  | -10.146***<br>(3.706) | 1.412***<br>(0.486)       | 1.354***<br>(0.509)  | 0.900<br>(0.687)      |
| GDP per capita            | 0.327***<br>(0.050)     | 0.266***<br>(0.083)   | 0.804***<br>(0.159)   | 0.084***<br>(0.017)       | 0.109***<br>(0.019)  | 0.093***<br>(0.027)   |
| Lerner index              |                         | 22.433**<br>(10.845)  | 11.547<br>(15.475)    |                           | -8.770***<br>(2.551) | -4.139<br>(2.814)     |
| Bank concentration        |                         | -0.198**<br>(0.092)   | -0.238<br>(0.151)     |                           | -0.009<br>(0.022)    | 0.065**<br>(0.027)    |
| Financial openness        |                         |                       | -28.044*<br>(15.228)  |                           |                      | -0.607<br>(2.808)     |
| Financial liberalization  |                         |                       | 95.086**<br>(46.407)  |                           |                      | -22.520***<br>(8.580) |
| Constant (a)              | 27.201<br>(26.802)      | 66.386***<br>(12.060) | -59.657<br>(46.197)   | -10.884***<br>(2.642)     | -9.361***<br>(3.025) | 7.113<br>(8.583)      |
| Observations              | 940                     | 525                   | 272                   | 607                       | 532                  | 274                   |
| R-squared                 | 0.144                   | 0.207                 | 0.225                 | 0.300                     | 0.340                | 0.504                 |
| Number of countries       | 72                      | 55                    | 42                    | 65                        | 54                   | 41                    |

# Methodology and results



| Dependent variable        | Z-score              |                      |                      | Capital-to-asset ratio |                      |                      |
|---------------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|
|                           | (1)                  | (2)                  | (3)                  | (1)                    | (2)                  | (3)                  |
| <b><i>CONS</i></b>        | -2.064**<br>(1.043)  | -2.685**<br>(1.056)  | -3.196*<br>(1.733)   | -2.936***<br>(0.598)   | -2.223***<br>(0.585) | -1.212<br>(0.984)    |
| Variance of supply shocks | 0.575<br>(0.408)     | 0.406<br>(0.431)     | -0.443<br>(0.681)    | 0.409*<br>(0.211)      | 0.176<br>(0.227)     | -0.685*<br>(0.388)   |
| Variance of demand shocks | -0.745*<br>(0.379)   | -0.999***<br>(0.379) | -1.714**<br>(0.700)  | -0.588***<br>(0.204)   | -0.728***<br>(0.198) | -0.994**<br>(0.380)  |
| GDP per capita            | -0.039***<br>(0.014) | -0.045***<br>(0.015) | -0.055**<br>(0.028)  | -0.013<br>(0.008)      | -0.022***<br>(0.008) | -0.035**<br>(0.017)  |
| Lerner index              |                      | 4.617**<br>(1.960)   | 2.338<br>(2.865)     |                        | 2.291**<br>(0.973)   | 1.310<br>(1.426)     |
| Bank concentration        |                      | 0.010<br>(0.017)     | 0.017<br>(0.027)     |                        | 0.021**<br>(0.009)   | 0.051***<br>(0.015)  |
| Financial openness        |                      |                      | 1.177<br>(2.909)     |                        |                      | -0.825<br>(1.887)    |
| Financial liberalization  |                      |                      | -15.198*<br>(8.902)  |                        |                      | -10.917*<br>(5.697)  |
| Constant (a)              | 20.851***<br>(2.009) | 20.666***<br>(2.201) | 35.072***<br>(8.906) | 12.779***<br>(1.155)   | 12.133***<br>(1.206) | 21.611***<br>(5.690) |
| Observations              | 633                  | 577                  | 282                  | 457                    | 429                  | 187                  |
| R-squared                 | 0.037                | 0.061                | 0.072                | 0.115                  | 0.138                | 0.205                |
| Number of countries       | 60                   | 56                   | 43                   | 54                     | 52                   | 40                   |
| <b><i>CONS_W</i></b>      | -2.455**<br>(1.043)  | -3.019***<br>(1.079) | -3.564**<br>(1.786)  | -3.096***<br>(0.614)   | -2.354***<br>(0.608) | -1.028<br>(1.088)    |
| Variance of supply shocks | 0.257<br>(0.425)     | 0.031<br>(0.444)     | -0.908<br>(0.711)    | -0.008<br>(0.218)      | -0.128<br>(0.231)    | -0.826**<br>(0.394)  |
| Variance of demand shocks | -0.413<br>(0.387)    | -0.591<br>(0.387)    | -1.120<br>(0.707)    | -0.151<br>(0.209)      | -0.396*<br>(0.205)   | -0.814**<br>(0.403)  |
| GDP per capita            | -0.040***<br>(0.014) | -0.047***<br>(0.015) | -0.057**<br>(0.028)  | -0.014*<br>(0.008)     | -0.023***<br>(0.008) | -0.035**<br>(0.017)  |
| Lerner index              |                      | 4.278**<br>(1.963)   | 2.164<br>(2.859)     |                        | 2.019**<br>(0.978)   | 1.261<br>(1.431)     |
| Bank concentration        |                      | 0.008<br>(0.017)     | 0.015<br>(0.027)     |                        | 0.020**<br>(0.009)   | 0.051***<br>(0.015)  |
| Financial openness        |                      |                      | 1.282<br>(2.906)     |                        |                      | -0.915<br>(1.902)    |
| Financial liberalization  |                      |                      | -14.645*<br>(8.858)  |                        |                      | -10.661*<br>(5.701)  |
| Constant (a)              | 21.208***<br>(2.017) | 21.192***<br>(2.244) | 35.085***<br>(8.849) | 12.909***<br>(1.159)   | 12.306***<br>(1.219) | 21.342***<br>(5.746) |
| Observations              | 633                  | 577                  | 282                  | 457                    | 429                  | 187                  |
| R-squared                 | 0.040                | 0.063                | 0.074                | 0.117                  | 0.139                | 0.201                |
| Number of countries       | 60                   | 56                   | 43                   | 54                     | 52                   | 40                   |

# Robustness checks



- **Alternative sets of control variables:**
  - Demand and supply shocks substituted by the annual growth rate of real GDP and the annual inflation rate
  - Lerner index substituted by the Boone index (Boone, 2008)
  - Alternative measure of banking sector concentration: assets of three largest commercial banks as a share of total commercial banking assets replaced by the assets of five largest commercial banks as a share of total commercial banking assets
  - Alternative measures of financial liberalization: we alternatively substitute the financial liberalization variable by measures of credit controls, banking supervision, supervisor power and quality of the institutions (law and order)
- **Additional control variables:**
  - Capital flows (Lane and Milesi-Ferretti, 2007) are added in specification (3) to have a complete picture of financial openness (*de jure* and *de facto* indicators)
- **IV (2SLS) estimator:**
  - 3 variables considered to instrument Central Banks' preferences: the first lag of the CONS (or CONS\_W) index, and two measures of CBI (CWN index and turnover rate of central bank governors).



# Robustness checks

| Dependent variable                | Credit volatility |           |          |          |           |          |
|-----------------------------------|-------------------|-----------|----------|----------|-----------|----------|
|                                   | (1)               | (2)       | (3)      | (1)      | (2)       | (3)      |
| CONS                              | 39.453*           | 127.286** | 66.164*  |          |           |          |
|                                   | (20.193)          | (54.720)  | (37.553) |          |           |          |
| CONS_W                            |                   |           |          | 49.289** | 163.217** | 87.753** |
|                                   |                   |           |          | (23.268) | (70.843)  | (43.453) |
| Observations                      | 842               | 438       | 272      | 775      | 412       | 255      |
| Number of countries               | 68                | 51        | 40       | 66       | 50        | 39       |
| R-squared                         | 0.046             | 0.069     | 0.138    | 0.048    | 0.053     | 0.122    |
| Hansen J-OverID test [p-value]    | 0.741             | 0.389     | 0.128    | 0.758    | 0.594     | 0.371    |
| Cragg-Donald Wald F Stat.         | 569.7             | 202.9     | 97.65    | 345.6    | 115.8     | 71.04    |
| Stock & Yogo critical value (10%) | 22.30             | 22.30     | 22.30    | 22.30    | 22.30     | 22.30    |

| Dependent variable                | Credit-to-GDP gap |           |         |          |          |          |
|-----------------------------------|-------------------|-----------|---------|----------|----------|----------|
|                                   | (1)               | (2)       | (3)     | (1)      | (2)      | (3)      |
| CONS                              | 14.246***         | 16.918*** | 16.096* |          |          |          |
|                                   | (3.503)           | (4.776)   | (8.361) |          |          |          |
| CONS_W                            |                   |           |         | 10.024** | 11.718** | 22.668** |
|                                   |                   |           |         | (4.034)  | (5.613)  | (9.472)  |
| Observations                      | 958               | 538       | 272     | 892      | 513      | 255      |
| Number of countries               | 69                | 52        | 40      | 68       | 52       | 39       |
| R-squared                         | 0.154             | 0.249     | 0.262   | 0.130    | 0.234    | 0.244    |
| Hansen J-OverID test [p-value]    | 0.069             | 0.083     | 0.178   | 0.150    | 0.256    | 0.531    |
| Cragg-Donald Wald F Stat.         | 740.2             | 319.6     | 97.65   | 446.5    | 196      | 71.04    |
| Stock & Yogo critical value (10%) | 22.30             | 22.30     | 22.30   | 22.30    | 22.30    | 22.30    |

| Dependent variable                | Credit-to-deposit ratio |           |           |          |           |           |
|-----------------------------------|-------------------------|-----------|-----------|----------|-----------|-----------|
|                                   | (1)                     | (2)       | (3)       | (1)      | (2)       | (3)       |
| CONS                              | 17.365***               | 37.376*** | 32.260*** |          |           |           |
|                                   | (5.097)                 | (6.640)   | (8.872)   |          |           |           |
| CONS_W                            |                         |           |           | 11.408** | 28.599*** | 39.855*** |
|                                   |                         |           |           | (5.806)  | (7.954)   | (9.598)   |
| Observations                      | 902                     | 500       | 262       | 837      | 475       | 245       |
| Number of countries               | 68                      | 51        | 39        | 67       | 51        | 38        |
| R-squared                         | 0.163                   | 0.267     | 0.261     | 0.154    | 0.235     | 0.239     |
| Hansen J-OverID test [p-value]    | 0.076                   | 0.072     | 0.054     | 0.051    | 0.120     | 0.132     |
| Cragg-Donald Wald F Stat.         | 656.2                   | 269.8     | 96.99     | 395.2    | 163.2     | 71.07     |
| Stock & Yogo critical value (10%) | 22.30                   | 22.30     | 22.30     | 22.30    | 22.30     | 22.30     |

Notes: This table reports the estimated values of  $\beta$  in Eq. (1). Standard errors are reported in parentheses. \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

# Robustness checks



| Dependent variable                | Nonperforming loans ratio |                      |                     |                     |                     |                     |
|-----------------------------------|---------------------------|----------------------|---------------------|---------------------|---------------------|---------------------|
|                                   | (1)                       | (2)                  | (3)                 | (1)                 | (2)                 | (3)                 |
| CONS                              | 10.491***<br>(2.423)      | 10.372***<br>(1.562) | 8.699***<br>(2.275) |                     |                     |                     |
| CONS_W                            |                           |                      |                     | 9.526***<br>(2.606) | 9.840***<br>(1.918) | 8.406***<br>(2.616) |
| Observations                      | 572                       | 504                  | 264                 | 545                 | 482                 | 250                 |
| Number of countries               | 56                        | 50                   | 38                  | 56                  | 50                  | 38                  |
| R-squared                         | 0.298                     | 0.349                | 0.481               | 0.318               | 0.368               | 0.468               |
| Hansen J-OverID test [p-value]    | 0.583                     | 0.794                | 0.843               | 0.311               | 0.624               | 0.658               |
| Cragg-Donald Wald F Stat.         | 326.7                     | 273.8                | 93.43               | 193.9               | 167.3               | 69.57               |
| Stock & Yogo critical value (10%) | 22.30                     | 22.30                | 22.30               | 22.30               | 22.30               | 22.30               |

| Dependent variable                | Z-score            |                     |                   |                    |                     |                   |
|-----------------------------------|--------------------|---------------------|-------------------|--------------------|---------------------|-------------------|
|                                   | (1)                | (2)                 | (3)               | (1)                | (2)                 | (3)               |
| CONS                              | -1.886*<br>(1.126) | -2.466**<br>(1.216) | -2.240<br>(2.084) |                    |                     |                   |
| CONS_W                            |                    |                     |                   | -2.216*<br>(1.343) | -2.914**<br>(1.453) | -2.441<br>(2.376) |
| Observations                      | 604                | 549                 | 272               | 576                | 524                 | 255               |
| Number of countries               | 57                 | 53                  | 40                | 57                 | 53                  | 39                |
| R-squared                         | 0.032              | 0.061               | 0.081             | 0.030              | 0.053               | 0.083             |
| Hansen J-OverID test [p-value]    | 0.409              | 0.622               | 0.670             | 0.345              | 0.537               | 0.470             |
| Cragg-Donald Wald F Stat.         | 358.1              | 326.7               | 97.65             | 217.3              | 200.4               | 71.04             |
| Stock & Yogo critical value (10%) | 22.30              | 22.30               | 22.30             | 22.30              | 22.30               | 22.30             |

| Dependent variable                | Capital-to-asset ratio |                     |                   |                     |                   |                   |
|-----------------------------------|------------------------|---------------------|-------------------|---------------------|-------------------|-------------------|
|                                   | (1)                    | (2)                 | (3)               | (1)                 | (2)               | (3)               |
| CONS                              | -2.433***<br>(0.913)   | -1.752**<br>(0.880) | -1.035<br>(1.226) |                     |                   |                   |
| CONS_W                            |                        |                     |                   | -1.836**<br>(0.912) | -1.426<br>(0.873) | -0.860<br>(1.409) |
| Observations                      | 434                    | 407                 | 179               | 414                 | 388               | 169               |
| Number of countries               | 52                     | 50                  | 36                | 52                  | 50                | 36                |
| R-squared                         | 0.136                  | 0.157               | 0.218             | 0.130               | 0.159             | 0.271             |
| Hansen J-OverID test [p-value]    | 0.231                  | 0.232               | 0.406             | 0.279               | 0.312             | 0.314             |
| Cragg-Donald Wald F Stat.         | 265.3                  | 248.9               | 64.57             | 175.0               | 175.0             | 48.06             |
| Stock & Yogo critical value (10%) | 22.30                  | 22.30               | 22.30             | 22.30               | 22.30             | 22.30             |

Notes: This table reports the estimated values of  $\beta$  in Eq. (1). Standard errors are reported in parentheses. \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively.



## Conclusion & extensions



- The dramatic recent financial and banking crisis occurred in a context of low inflation. This casts some doubts on the Schwartz's conventional wisdom
- On the contrary, some economists consider that with monetary policies primarily focused on price stability, banking and financial risks were largely undressed
- To this view, the divine coincidence has turned out to be benign neglect
- Objective of the paper: empirically testing the Schwartz's conventional wisdom vs the benign neglect

## Conclusion & extensions



- First paper in the literature that addresses the link the relative preferences of central banks (i.e. degree of central bank conservatism or inflation aversion) and the banking sector vulnerability
  - Our results, based on a sample of 73 industrial and emerging economies from 1980 to 2012, indicate that the higher the degree of central bank conservatism, the higher the banking sector vulnerability
- results in favor of the benign neglect hypothesis
- Results robust to several specifications

# Conclusion & extensions



- **Future extensions:**

- 1) Assessing the impact of central bank preferences on the real cost of banking crises
  - *Ex ante*: the higher the degree of central bank conservatism, the higher the banking sector vulnerability
  - *Ex post*: a conservative central bank may be reluctant to deviate from its sacred inflation objective when a banking crisis occurs → less (and late) support for the economy and the banking system
- 2) What about inflation targeting?
  - Inflation-targeting central banks more conservative? If yes, the inflation targeting strategy can be detrimental for financial stability



# Thank you for your attention

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