

The political economy of reforms in central bank design: evidence from a new database

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Motivation

- **Central Bank Independence over the past 3 decades**
 - ▶ Large academic literature: why? how? what?
 - ▶ Policy side: central banks around the world have gradually become more independent
- Despite the wide consensus on CBI, large worldwide differences in the timing and magnitude of reforms

“Monetary policy independence remains of the highest importance, and it is important that we preserve monetary policy independence to help foster desirable macroeconomic outcomes and financial stability.”

— Stanley Fisher (Nov 2015)

- No systematic study on the drivers of reforms in central bank institutional design

The evolution of central banking

- **How to measure central bank independence?**

- ① *De jure* CBI indices: Bade and Parkin (1982), Grilli et al. (1991), Cukierman (1992) and Cukierman et al. (1992)
- ② *De facto* CBI indices: Cukierman et al. (1992)

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- **Impact of central bank independence on macroeconomic outcomes**

- ▶ Negative relationship between CBI and inflation: Grilli et al. (1991), Cukierman et al. (1992), Acemoglu et al. (2008), Arnone et al. (2009).
- ▶ Positive impact on bank soundness (Doumpos et al., 2015)

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● Changing role of Central Banks after the crisis

- ▶ Central bank financial independence
- ▶ Central bank accountability

● Main empirical challenge

- ▶ Lack of data on the timing, size and evolution of reforms in central bank design

This paper

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- Propose an extended index of central bank independence by taking into account:
 - ▶ The *dynamics* of CBI since 1970s in 154 countries
 - ▶ New data on financial independence and accountability
- Using the newly created index of CBI, I identify when, by how much and why did countries reform their central banks
 - ▶ Initial reforms, regional convergence and external pressure to reform increase the likelihood of reforms
 - ▶ Political factors or crises episodes have little impact

Data

- **The ECBI index:**
 - ▶ 42 questions on central bank design across 6 dimensions:
 - ★ 1) Governor and Central Bank Board; 2) Monetary Policy and Conflicts Resolution; 3) Objectives; 4) Lending to the Government; 5) Financial Independence; 6) Central Bank Reporting and Accountability
 - ▶ Overall index computed as the arithmetic average of the scores across the six dimensions

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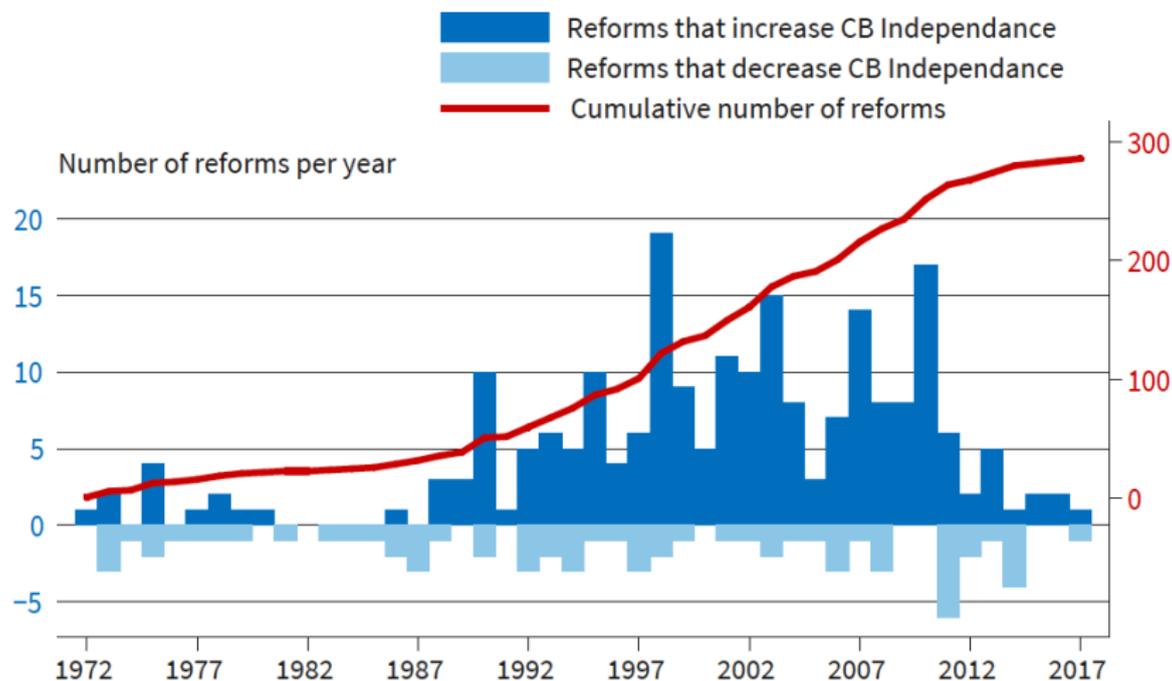
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Table: Measures of Central Bank Independence and Reforms

Paper	Index Name	Variables	Countries	Period	Nr. of reforms
Grilli et al. (1991)	GMT	16	18	1989	–
Cukierman et al. (1992)	CWN	16	72	1950-1989	35
Cukierman et al. (2002)	CWN	16	26	1991-1998	9
Polillo and Guillén (2005)	CWN	16	91	1989-2000	60
Jacome and Vazquez (2008)	CWNE	17	24	1990-2002	13
Acemoglu et al. (2008)	CWN	16	52	1972-2005	40
Dincer and Eichengreen (2014)	CBIU	24	85	1998-2010	44
Bodea and Hicks (2015)	CWN	16	83	1972-2010	108
This paper	ECBI	42	154	1972-2017	286

Note: Number of countries and reforms in CBI identified in previous works and in this paper.

Central Bank Legislative Reforms (1972–2017)



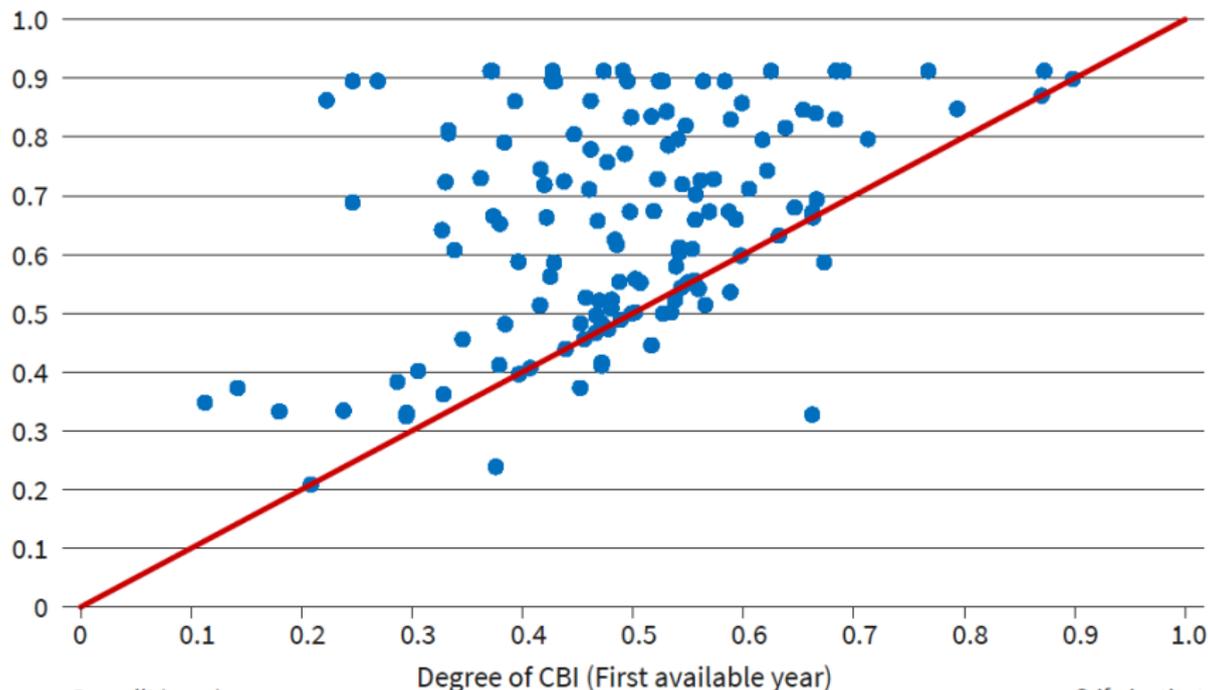
Source: Romelli (2018).

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Note: Frequency of reforms that increased/decreased the ECBI index, together with the cumulative number of reforms in CBI between 1972 and 2017.

Evolution of Central Bank Independence

Degree of CBI (Last available year)

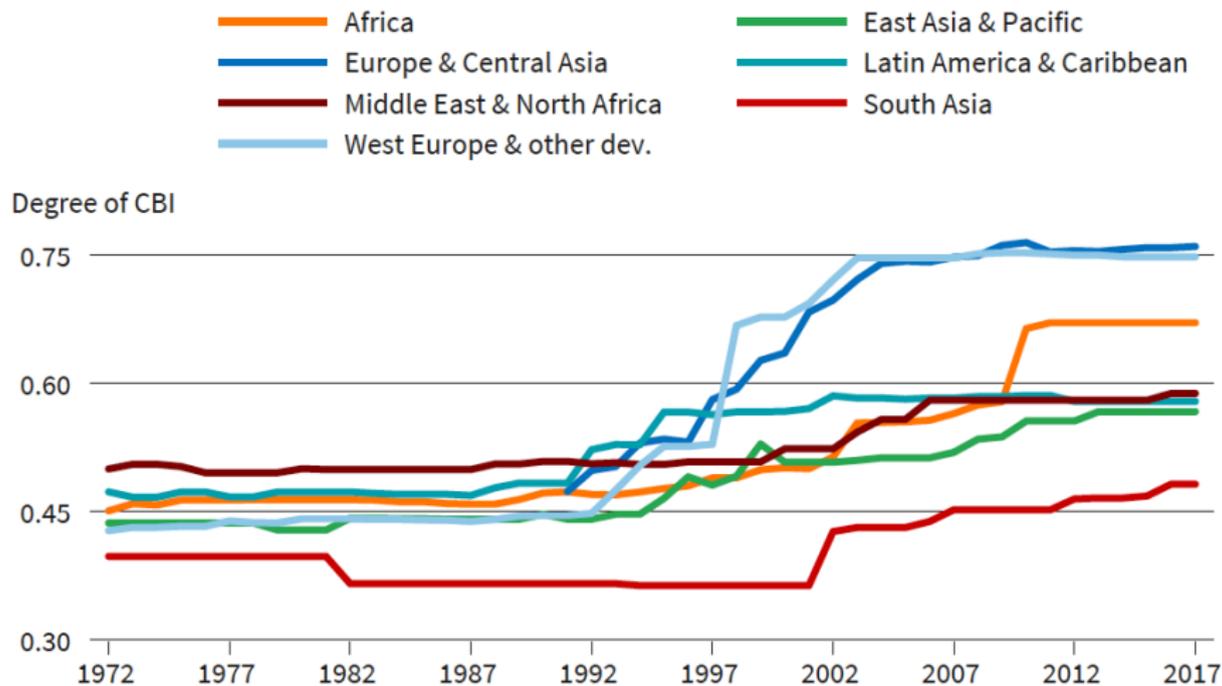


Source: Romelli (2018).

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Note: Level of central bank independence proxied by the ECBI index in 1972 (or the first year available) and 2017.

Evolution of CBI by Regions



Source: Romelli (2018).

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Note: Evolution of the average index of CBI by regional clusters.

Drivers of reforms in central bank independence

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$$\Delta ECBI_{it} = \beta_1 \text{Status quo} + \beta_2 \text{Reg. press} + \beta_3' \phi^{\text{Crises}} + \beta_4' \phi^{\text{Int}} + \beta_5' \phi^{\text{Pol+}} + \beta_6' \phi^{\text{Econ}} + \epsilon_{it}$$

Drivers of reforms in CB design: ordered logit estimates

- Previous levels of independence, regional convergence and external pressures represent important drivers of changes in CBI

	Full sample				Advanced	Developing
	(1)	(2)	(3)	(4)	(5)	(6)
Status quo	2.404* (1.456)	2.506* (1.410)	4.503*** (1.180)	8.065*** (1.561)	8.378*** (2.421)	9.842*** (2.380)
Regional pressure	2.238*** (0.477)	2.242*** (0.477)	3.326*** (0.456)	3.157*** (0.474)	2.580*** (0.910)	3.824*** (0.510)
Financial crisis		0.189 (0.256)	-0.006 (0.247)	-0.103 (0.250)	-0.348 (0.540)	-0.022 (0.285)
Inflation crisis		0.097 (0.236)	0.084 (0.265)	0.134 (0.270)	0.562 (0.632)	-0.030 (0.303)
Recession		0.027 (0.156)	-0.085 (0.161)	-0.011 (0.176)	0.191 (0.286)	-0.068 (0.228)
IMF programs			0.633*** (0.156)	0.814*** (0.196)	1.203* (0.622)	0.713*** (0.202)
Currency union			3.312*** (0.189)	2.819*** (0.223)	2.826*** (0.343)	2.982*** (0.332)
Additional controls:						
Ideology and political factors				Yes	Yes	Yes
Economic conditions				Yes	Yes	Yes
Observations	5,752	5,752	5,366	4,264	1,034	3,230
Number of countries	153	153	151	135	32	111

Drivers of reforms in CB design: alternative specifications

$$Prob(Reform_{i,t} = 1) = F(\beta_1 ECBI_{i,t-1}(1 - ECBI_{i,t-1}) + \beta_2(REG_{t-1} - ECBI_{i,t-1}) + \beta_3\phi^{Crisis} + \beta_4\phi^{International} + \beta_5\phi^{Pol+} + \beta_6\phi^{Econ} + \epsilon_{i,t}),$$

	Reform				$\Delta ECBI$	
	(1) Cloglog	(2)	(3)	(4) Logit	(5) OLS	(6)
Status quo	3.693* (2.011)		3.954* (2.097)		0.054** (0.025)	
$ECBI_{t-1}$		5.393* (2.910)		5.655* (2.982)		-0.040 (0.048)
$ECBI_{t-1}^2$		-4.621** (2.342)		-4.852** (2.404)		-0.009 (0.029)
Regional pressure	1.979*** (0.524)	2.590*** (0.897)	2.042*** (0.543)	2.681*** (0.942)	0.083*** (0.011)	0.046** (0.023)
IMF programs	0.622*** (0.189)	0.607*** (0.189)	0.639*** (0.195)	0.625*** (0.195)	0.004** (0.002)	0.004** (0.002)
Currency union	2.061*** (0.235)	2.077*** (0.236)	2.231*** (0.263)	2.248*** (0.264)	0.044*** (0.006)	0.044*** (0.006)
Additional controls:						
Crisis	Yes	Yes	Yes	Yes	Yes	Yes
Ideology and political factors	Yes	Yes	Yes	Yes	Yes	Yes
Economic conditions	Yes	Yes	Yes	Yes	Yes	Yes
Country FE					Yes	Yes
Year FE					Yes	Yes
Observations	4,264	4,264	4,264	4,264	4,264	4,264
R-squared					0.104	0.106
Number of countries	135	135	135	135	135	135

Direction and magnitude of reforms

- Do the drivers of reform differ depending on the direction of reforms?

	<i>Reform > 0</i>		<i>Large Reform > 0.10</i>		<i>Reform < 0</i>	
	(1)	(2)	(5)	(6)	(3)	(4)
$ECBI_{t-1}*(1- ECBI_{t-1})$	7.761*** (2.565)		19.220*** (4.778)		-3.963 (4.146)	
$ECBI_{t-1}$		10.232*** (3.575)		21.970*** (5.914)		-2.785 (6.935)
$ECBI_{t-1}^2$		-9.150*** (2.963)		-20.788*** (5.187)		3.343 (5.113)
$REG_{t-1} - ECBI_{t-1}$	3.033*** (0.591)	3.871*** (0.993)	4.326*** (0.825)	5.184*** (1.332)	-2.417* (1.451)	-1.98 (2.496)
Financial crisis	0.103 (0.230)	0.082 (0.231)	0.005 (0.299)	-0.018 (0.300)	0.777* (0.402)	0.774* (0.402)
IMF programs	0.922*** (0.220)	0.900*** (0.220)	1.175*** (0.298)	1.156*** (0.297)	-0.266 (0.404)	-0.268 (0.403)
$Polity_{t-1}$	0.024 (0.018)	0.025 (0.018)	0.057** (0.024)	0.058** (0.024)	-0.021 (0.034)	-0.021 (0.034)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4264	4264	4264	4264	4138	4138
Number of countries	135	135	135	135	135	135

- Financial crises do seem to influence the probability of reducing the level of independence

Central bank design and democracy

	Ologit (1) Δ ECBI	Logit (2) <i>Reform</i>	OLS (3) Δ ECBI	Ologit (4) Δ ECBI	Logit (5) <i>Reform</i>	OLS (6) Δ ECBI
$ECBI_{t-1}*(1 - ECBI_{t-1})$	7.941*** (1.549)	3.633* (2.009)	0.055** (0.025)	8.056*** (1.553)	3.760* (1.993)	0.058** (0.024)
$REG_{t-1} - ECBI_{t-1}$	3.153*** (0.478)	1.969*** (0.525)	0.083*** (0.011)	3.096*** (0.463)	1.914*** (0.521)	0.082*** (0.011)
$Democracy_t$	0.240 (0.205)	0.120 (0.207)	0.002 (0.003)			
$Democratic Reform_t$				1.508*** (0.519)	1.403*** (0.373)	0.024** (0.011)
IMF programs	0.829*** (0.195)	0.632*** (0.189)	0.004** (0.002)	0.845*** (0.194)	0.634*** (0.188)	0.005** (0.002)
Currency union	2.841*** (0.223)	2.077*** (0.235)	0.043*** (0.006)	2.871*** (0.221)	2.089*** (0.234)	0.043*** (0.006)
$GDP growth_{t-1}$	0.026*** (0.009)	0.017* (0.010)	0.001 (0.001)	0.026*** (0.008)	0.018* (0.010)	0.001 (0.001)
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Country FE			Yes			Yes
Year FE			Yes			Yes
Observations	4,263	4,263	4,263	4,260	4,260	4,260
R-squared			0.104			0.109
Number of countries	135	135	135	135	135	135

Crises, IMF programs and reforms

	Full sample (1)	Advanced (2)	Developing (3)	Full sample (4)	Advanced (5)	Developing (6)
Status quo	8.041*** (1.562)	8.424*** (2.480)	9.756*** (2.345)	7.252*** (1.509)	8.574*** (2.459)	8.603*** (2.205)
Regional pressure	3.168*** (0.473)	2.448*** (0.863)	3.835*** (0.498)	3.065*** (0.494)	2.340*** (0.869)	3.749*** (0.515)
Crisis	0.045 (0.154)	0.115 (0.304)	0.019 (0.176)	0.116 (0.152)	0.193 (0.282)	0.102 (0.177)
IMF programs	0.798*** (0.192)	1.155** (0.539)	0.704*** (0.199)			
IMF programs (random)				0.067 (0.160)	0.065 (0.304)	0.048 (0.185)
Currency Union	2.811*** (0.226)	2.831*** (0.347)	2.970*** (0.325)	2.668*** (0.219)	2.706*** (0.351)	2.761*** (0.268)
Additional controls:						
Ideology and political factors	Yes	Yes	Yes	Yes	Yes	Yes
Economic conditions	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,264	1,034	3,230	4,264	1,034	3,230
Number of countries	135	32	111	135	32	111

Estimates with alternative CBI indices

	ΔGMT		ΔCWN		ΔCWNE	
	(1)	(2)	(3)	(4)	(5)	(6)
Status quo	2.172 (1.487)		4.019*** (1.353)		2.780 (1.759)	
CBI_{t-1}		1.783 (2.334)		5.961*** (2.254)		3.040 (2.439)
CBI_{t-1}^2		-2.020 (1.734)		-4.871*** (1.655)		-2.888 (1.947)
Regional pressure	2.142*** (0.588)	1.928** (0.960)	1.885*** (0.495)	2.905*** (0.980)	3.317*** (0.506)	3.453*** (0.949)
Financial crisis	-0.134 (0.364)	-0.129 (0.368)	0.189 (0.315)	0.179 (0.316)	0.291 (0.316)	0.289 (0.318)
Inflation crisis	0.025 (0.377)	0.040 (0.378)	-0.094 (0.468)	-0.137 (0.471)	-0.478 (0.404)	-0.484 (0.406)
Recession	0.145 (0.186)	0.142 (0.189)	0.258 (0.215)	0.280 (0.217)	0.188 (0.222)	0.191 (0.224)
IMF programs	0.676*** (0.238)	0.679*** (0.238)	0.970*** (0.262)	0.958*** (0.261)	0.946*** (0.249)	0.942*** (0.247)
Currency union	2.814*** (0.284)	2.803*** (0.282)	2.677*** (0.315)	2.742*** (0.315)	2.726*** (0.290)	2.736*** (0.280)
Additional controls:						
Ideology and political factors	Yes	Yes	Yes	Yes	Yes	Yes
Economic conditions	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,906	2,906	2,906	2,906	2,906	2,906
Number of countries	132	132	132	132	132	132

On the political economy of reforms in central bank design (so far) ...

- Large dataset on the timing, evolution and magnitude of reforms in central bank design between 1972-2017
- The likelihood of CBs reforms is mainly driven by status quo and regional pressure as well as an international pressure to reform such as IMF Loan Programs
- Contributes to a larger literature on political institutions by underscoring the importance of understanding the dynamics of the reform process

Can we take CBI for granted?

- Since the global financial crisis, a growing number of central banks around the world are facing political pressures that have called their independence into question.

Hungary's central bank 'revolution' attacked

Orbán and Fidesz party consolidate control of MNB

Kester Eddy in Budapest MARCH 19 2013



Turkish central bank needs to be 'fully independent,' IMF's Europe director says

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RBI governor Urjit Patel quits after months of friction with Modi government

By Rupur Anand | December 10, 2018

Los Angeles Times

Argentina's president fires central bank chief over foreign reserves



Donald J. Trump 
@realDonaldTrump



The only problem our economy has is the Fed. They don't have a feel for the Market, they don't understand necessary Trade Wars or Strong Dollars or even Democrat Shutdowns over Borders. The Fed is like a powerful golfer who can't score because he has no touch - he can't putt!

 97.9K  3:55 PM - Dec 24, 2018 

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Thank you for your attention

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