Revisiting the Institutional Determinants of Central Bank Independence

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Abstract

Reform towards greater central bank independence is generally seen as intertwined with institutional development more broadly. However, the largest empirical study to date on the determinants of central bank independence found a *negative* relationship to institutional quality variables. This paper argues that this is related to sample length: using a different dataset for central bank independence with a considerably longer sample, institutional variables are found to be positive and highly significant determinants of central bank independence.

Keywords: Central Bank Independence, Institutions, Democratic accountability, Bureaucracy quality, Political stability.

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Central bank independence (CBI) is widely regarded as a pillar of effective monetary policy frameworks, one which is intimately tied to the broader process of institutional development, and can also erode when institutional quality declines (Laurens et al., 2015; Masciandaro and Romelli, 2015; Agur et al., 2015; Goodhart and Lastra, 2018). Remarkably, however, the largest empirical study to date on the determinants of CBI, Dincer and Eichengreen (2014), finds that "there is no evidence that countries with more robust institutions strengthened the independence of their central banks, perhaps because the level of central bank independence was already high. If anything, the opposite is true." Here, the last sentence refers to the negative and significant coefficients on all institutional determinants in their regressions. Rule of law, political stability, government efficiency, voice and accountability, and regulatory quality *negatively* affect CBI, according to these results.[1]

However, behind Dincer and Eichengreen's (2014) clause "perhaps because the level of central bank independence was already high" lies what may be an important clue: the sample length. Dincer and Eichengreen's (2014) sample has a broad coverage of countries (100), but starts in 1998, possibly too late to fully capture a slow-moving interaction between institutions and CBI.[2]

In this paper, we use the longer sample of Garriga (2016) to re-examine the institutional determinants of CBI. Both in terms of data and methodology, we stay close to Dincer and Eichengreen (2014). Firstly, the CBI data of Garriga (2016) is constructed using the same index

[1] Definitions of these institutional variables can be found at http://info.worldbank.org/governance/wgi/#doc

[2] Other studies tend to focus on specific political factors, rather than institutional determinants in general. For instance, Crowe and Meade (2008) and Bodea and Hicks (2015) examine CBI in relation to democracy versus dictatorship. Using the dataset of Garriga (2016), Agur (2018) analyzes the impact of political nationalism on CBI. See de Haan and Eijffinger (2018) for a survey of the literature on the politics of CBI.

used by Dincer and Eichengreen (2014), namely the Cukierman, Webb and Neypati (1992) metric. The components of this metric are financial independence, policy independence, personnel independence, and central bank objectives, each of which consists of several sub-components that are scored using central bank legislation and statutory reforms. Garriga (2016) applies the Cukierman, Webb and Neypati (1992) method to 182 countries between 1970-2012.[3]

Secondly, we use similar institutional variables. The institutional variables in Dincer and Eichengreen (2014) come from the Worldwide Governance Indicators (WGI) database of the World Bank. However, this data starts in 1996. To go back further, we instead use the institutional variables of the International Country Risk Guide (ICRG), which begin in 1984, and cover 114 countries. To our knowledge, ICRG is the longest duration dataset of its kind, covering a broad range of institutional variables for a large number of countries.[4] The ICRG variables on bureaucracy quality, corruption, democratic accountability, government stability, and law & order closely resemble the WGI variables used in Dincer and Eichengreen (2014). In addition, we include ICRG measures that are indicative of stability and trust in society – "soft" institutional variables relating to the notion of social capital - namely: ethnic and religious tensions, internal and external conflict, and socioeconomic conditions.[5] Furthermore,

[3] The index of Cukierman, Webb and Neypati (1992) measures *de jure* independence, and an increase in *de jure* independence does not always translate into *de facto* independence (Cukierman, 2008). However, *de jure* independence of a central bank is often a prerequisite for *de facto* independence and successful monetary reform more broadly (Freedman and Ötker-Robe, 2010).

[4] The World Bank's Database of Political Institutions goes back to 1975 for many countries, but only covers political data, which would not provide close coverage for the types of institutional variables used in Dincer and Eichengreen (2014).

[5] More direct measures of trust, from the World Values Survey, are only available for a small subset of countries during our sample period.

we also include a country's investment profile, and composite indices of economic, financial, and political risk, and an overall composite index, as aggregate measures of the types of risks that relate to a country's institutional quality.[6]

ICRG variables are all defined such that "up" is an "improvement". For example, higher bureaucracy quality implies a higher score on the bureaucracy quality index, while lower corruption leads to a higher score on the corruption index.

Thirdly, like Dincer and Eichengreen (2014) we run panel regressions with country fixed effects, where trade openness, GDP per capita, lagged inflation, and financial depth (measured as M2/GDP) are used as macroeconomic determinants.[7] The institutional variables are then added in separate regressions, to avoid the multicollinearity among them. The pairwise correlations between the ICRG institutional variables (other than the composites, which by construction have higher correlations with their underlying institutional variables) are in the range of +0.1 to +0.7. This means that while the institutional variables are positively, and at times quite strongly correlated, each variable nonetheless contains some degree of separate information on a country's institutional quality.

Table 1 presents the results of the fixed effects panel regressions for 114 countries over 1984-2012. Three of the four macroeconomic control variables (trade openness, GDP per capita and lagged inflation) are significant determinants of CBI in all specifications (while financial depth is positive but not significant).

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[6] Details on the ICRG methodology can be found at: https://www.prsgroup.com/wp-content/uploads/2012/11/icrgmethodology.pdf

[7] GDP per capita and inflation variables are taken from IMF WEO, while trade openness and financial depth are sourced from World Bank data.

Most institutional variables are positive and highly significant. Of the fifteen institutional variables we investigate, eleven are positive at 1% significance, and one is positive at 5% significance. The two institutional variables that are insignificant, namely religious tensions and socioeconomic conditions, belong to the category of social capital variables; but even within that category, the majority of variables (ethnic tensions, internal, and external conflict) comes out positive and statistically significant. The only surprise is corruption, which comes out negative and significant. This indeed seems counterintuitive, and we have no good explanation for this outcome. Nevertheless, with twelve institutional variables pointing in the expected direction, there seems sufficient basis to conclude that, with a long enough sample period, central bank independence does tend go hand-in-hand with stronger institutions.

As an additional test, we also run regressions using the same WGI institutional variables used by Dincer and Eichengreen (2014). The six institutional variables in WGI (corruption control, government effectiveness, political stability, rule of law, regulatory quality, voice & accountability) start in 1996, thereby restricting our sample length. Our sample breadth is widened, however, from 114 to 150 countries. The results reported in Table 2 show that three of the six institutional variables (government effectiveness, regulatory quality, and voice & accountability) have a positive and significant impact on CBI. Compared to Dincer and Eichengreen (2014), the regressions in Table 2 start two years earlier (1996 instead of 1998) and add fifty countries (150 countries against 100), due to the breadth (182 countries) of Garriga's (2016) CBI data. This addition to sample length and breadth is enough to go "part way" towards positive and significant institutional variables, albeit not as convincingly as in the regressions for the sample since 1984 in Table 1.

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Table 1: Panel regressions for Central Bank Independence (country fixed effects, 114 countries, 1984-2012).

	(1) Baseline	(2) Bureaucracy quality	(3) Corruption	(4) Democratic accountability	(5) Ethnic tension	(6) External conflict	(7) Govt. stability	(8) Internal conflict
Trade openness	0.141***	0.131***	0.128***	0.128***	0.140***	0.138***	0.126***	0.135***
	(0.0127)	(0.0126)	(0.0128)	(0.0127)	(0.0127)	(0.0128)	(0.0127)	(0.0127)
GDP per capita	0.513***	0.504***	0.472***	0.502***	0.524***	0.524***	0.519***	0.524***
	(0.0351)	(0.0346)	(0.0354)	(0.0348)	(0.0353)	(0.0352)	(0.0347)	(0.0350)
Lagged inflation	-7.965***	-7.706***	-7.549***	-7.396***	-7.963***	-7.981***	-6.676***	-7.514***
	(0.677)	(0.668)	(0.675)	(0.675)	(0.676)	(0.676)	(0.687)	(0.679)
Financial depth	0.130	0.132	0.0170	0.121	0.133	0.158	0.183	0.220
	(0.411)	(0.405)	(0.408)	(0.407)	(0.410)	(0.410)	(0.406)	(0.409)
Bureaucracy quality index		3.410***						
		(0.402)						
Corruption index			-1.853***					
			(0.292)					
Democratic accountability index				1.742***				
				(0.242)				
Ethnic tensions index					0.846***			
					(0.283)			
External conflict index						0.479***		
						(0.148)		
Government stability index							0.928***	
							(0.115)	
Internal conflict index								0.694***
								(0.135)
Constant	38.91***	32.55***	45.43***	33.22***	35.58***	34.39***	32.52***	33.10***
	(0.959)	(1.207)	(1.400)	(1.236)	(1.471)	(1.694)	(1.233)	(1.483)
Observations	2,578	2,578	2,578	2,578	2,578	2,578	2,578	2,578
R-squared	0.202	0.224	0.214	0.218	0.204	0.205	0.222	0.210
Number of countries	114	114	114	114	114	114	114	114

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Both financial depth and GDP per capita are divided by 1000 for ease of coefficient reading;
The institutional variables are all defined such that an increase is an improvement in institutional quality.

table continued.

	(9) Investment profile	(10) Law & order	(11) Religious tensions	(12) Socioeconomic conditions	(13) Economic risk	(14) Financial risk	(15) Political risk	(16) Composite risk rating
Trade openness	0.110***	0.142***	0.141***	0.141***	0.125***	0.122***	0.124***	0.113***
	(0.0127)	(0.0127)	(0.0127)	(0.0127)	(0.0129)	(0.0128)	(0.0127)	(0.0128)
GDP per capita	0.367***	0.513***	0.512***	0.518***	0.484***	0.518***	0.493***	0.492***
	(0.0366)	(0.0351)	(0.0351)	(0.0361)	(0.0352)	(0.0347)	(0.0347)	(0.0345)
Lagged inflation	-6.164***	-7.844***	-8.017***	-7.995***	-6.396***	-6.458***	-6.766***	-5.720***
	(0.680)	(0.679)	(0.679)	(0.679)	(0.722)	(0.692)	(0.681)	(0.701)
Financial depth	0.123	0.127	0.120	0.130	0.203	0.241	0.216	0.275
	(0.401)	(0.411)	(0.411)	(0.411)	(0.409)	(0.406)	(0.405)	(0.404)
Investment profile index	1.381***							
	(0.123)							
Law & order index		0.663**						
		(0.296)						
Religious tensions index			-0.320					
			(0.330)					
Socioeconomic conditions index				-0.106				
				(0.170)				
Economic risk index					0.331***			
					(0.0553)			
Financial risk index						0.296***		
						(0.0354)		
Political risk index							0.274***	
							(0.0311)	
Composite risk rating								0.318***
								(0.0318)
Constant	31.80***	36.48***	40.40***	39.48***	28.84***	29.68***	22.66***	19.67***
	(1.131)	(1.449)	(1.804)	(1.317)	(1.933)	(1.454)	(2.070)	(2.142)
Observations	2,578	2,578	2,578	2,578	2,575	2,575	2,575	2,575
R-squared	0.240	0.203	0.202	0.202	0.213	0.224	0.226	0.233
Number of countries	114	114	114	114	114	114	114	114

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Both financial depth and GDP per capita are divided by 1000 for ease of coefficient reading;
The institutional variables are all defined such that an increase is an improvement in institutional quality.

Table 2: Panel regressions for CBI with institutional variables from WGI (country fixed effects; 150 countries, 1996-2012).

	(1) Baseline	(2) Corruption	(3) Government effectiveness	(4) Political stability	(5) Rule of Law	(6) Regulatory quality	(7) Voice & accountability
Trade openness	0.0478***	0.0477***	0.0463***	0.0471***	0.0478***	0.0481***	0.0457***
	(0.00910)	(0.00910)	(0.00908)	(0.00910)	(0.00908)	(0.00909)	(0.00909)
GDP per capita	0.435***	0.437***	0.430***	0.434***	0.433***	0.426***	0.439***
	(0.0406)	(0.0406)	(0.0405)	(0.0406)	(0.0406)	(0.0407)	(0.0405)
Lagged inflation	-6.851***	-6.705***	-6.536***	-7.254***	-6.677***	-6.434***	-6.656***
	(1.926)	(1.932)	(1.922)	(1.936)	(1.932)	(1.931)	(1.920)
Financial depth	-0.0300	-0.0213	-0.0435	-0.0634	-0.0390	-0.0176	-0.0269
	(0.425)	(0.425)	(0.424)	(0.425)	(0.425)	(0.425)	(0.424)
Corruption control index		0.790					
		(0.846)					
Government effectiveness index			3.451***				
			(0.968)				
Political stability index				-1.018*			
				(0.574)			
Rule of law index					0.822		
					(1.011)		
Regulatory quality index						2.033**	
						(0.854)	
Voice & accountability index							2.700***
							(0.913)
Constant	49.80***	49.91***	50.37***	49.77***	49.95***	49.99***	50.25***
	(0.865)	(0.873)	(0.877)	(0.867)	(0.886)	(0.867)	(0.876)
Observations	1,963	1,963	1,963	1,961	1,969	1,963	1,969
R-squared	0.081	0.082	0.088	0.083	0.082	0.084	0.086
Number of countries	150	150	150	150	150	150	150

Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Both financial depth and GDP per capita are divided by 1000 for ease of coefficient reading;
The institutional variables are all defined such that an increase is an improvement in institutional quality.

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