Interest groups and central bank credit policies: Evidence from 1600-1914

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A-1 Summary statistics

Table A1: Summary statistics

	Observations	Mean	Std. Deviation	Minimum	Maximum
Government lending	2898	0.01	0.09	0	1
Discounting	2467	0.015	0.12	0	1
Military	3180	0.42	0.46	0	1
Economic	3180	0.32	0.44	0	1
War ongoing	3120	0.17	0.38	0	1
Legislative constraints	2520	0.49	0.31	0.036	0.94
Fiscal Capacity	3165	0.40	1.18	-3.03	2.61
GDP per capita (log)	3009	0.68	0.64	-0.87	2.43
Sovereign default	2637	0.16	0.36	0	1
Inflation crisis	2653	0.05	0.21	0	1
Systemic crisis	2766	0.02	0.15	0	1

A-2 Full results

Table A2: Interest groups and central bank lending to governments

	Bivariate (1)	Full (2)	Bivariate (3)	Full (4)	Independent (5)	Europe+ (6)
Military	1.32***	1.38**			1.25*	2.84***
	(0.47)	(0.68)			(0.69)	(0.89)
Economic			1.00*	1.11		
			(0.55)	(0.68)		
War ongoing		0.19		0.24	0.24	-0.16
		(0.61)		(0.63)	(0.61)	(1.56)
Legislative constraints		-1.10		-1.35	-1.10	-3.77**
		(0.97)		(0.98)	(0.95)	(1.77)
Fiscal capacity		0.02		0.08	-0.02	-0.59
		(0.21)		(0.21)	(0.21)	(0.47)
GDP per capita (log)		-0.23		-0.78	-0.28	1.93**
		(0.53)		(0.53)	(0.53)	(0.92)
Sovereign default		0.15		0.39	0.11	
		(0.59)		(0.57)	(0.58)	
Inflation crisis		0.75		0.66	0.73	0.61
		(1.09)		(1.12)	(1.09)	(1.23)
Systemic crisis		1.41		1.53	1.43	
		(1.35)		(1.27)	(1.37)	
t	-3.28	2.37	-2.47	3.68	1.81	12.99
	(4.08)	(6.85)	(4.18)	(6.56)	(7.51)	(28.44)
t^2	0.01	-0.00	0.01	-0.01	-0.00	-0.03
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.06)
t^3	-0.00	0.00	-0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	495.17	-382.91	374.25	-579.00	-292.22	-2073.50
	(612.30)	(1051.09)	(626.67)	(1006.61)	(1156.89)	(4251.02)
chi^2	13.98	13.86	6.59	12.29	11.87	116.62
$Prob > chi^2$	0.01	0.24	0.16	0.34	0.37	0.00
# Observations	2898	2036	2898	2036	1866	1047
Countries	43	34	43	34	33	16

Dependent variable: *Government lending*. Coefficients estimated using complementary log-log. Standard errors clustered by country. Variable t is a count variable counting years. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A3: Interest groups and central bank discounting

	Bivariate (1)	Full (2)	Bivariate (3)	Full (4)	Independent (5)	Europe+ (6)
Military	0.48	0.39				
	(0.38)	(0.51)				
Economic			1.05***	1.21***	1.39***	2.99*
			(0.39)	(0.47)	(0.50)	(1.64)
War ongoing		-0.43		-0.48	-0.53	-0.76
		(0.59)		(0.52)	(0.56)	(0.65)
Legislative constraints		-0.81		-0.99	-1.04	-0.05
		(0.89)		(0.79)	(0.72)	(1.24)
Fiscal capacity		0.39		0.49**	0.35*	0.92**
		(0.25)		(0.24)	(0.20)	(0.45)
GDP per capita (log)		-0.36		-0.77*	-0.77*	-2.45**
		(0.50)		(0.41)	(0.40)	(1.13)
Sovereign default		-0.48		-0.60	-0.74	
		(0.52)		(0.48)	(0.47)	
Inflation crisis		-0.02		0.04	-0.13	-0.11
		(1.07)		(1.08)	(1.10)	(1.30)
Systemic crisis		1.45*		1.62**	1.62**	0.45
		(0.79)		(0.72)	(0.71)	(0.75)
t	0.25	-7.36*	1.14	-6.49	-7.88*	2.36
	(2.70)	(4.35)	(2.82)	(4.50)	(4.53)	(6.69)
t^2	-0.00	0.02	-0.00	0.01	0.02*	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
t^3	0.00	-0.00	0.00	-0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-32.62	1140.89*	-164.03	1009.90	1232.96*	-298.23
	(405.28)	(657.79)	(421.19)	(679.41)	(684.47)	(992.36)
chi^2	10.12	26.29	15.98	37.70	29.98	53.51
$Prob > chi^2$	0.04	0.01	0.00	0.00	0.00	0.00
# Observations	2467	1509	2467	1509	1365	651
Countries	44	33	44	33	32	15

Dependent variable: *Discounting*. Coefficients estimated using complementary log-log. Standard errors clustered by country. Variable t is a count variable counting years. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

A-3 Robustness checks

Table A4: Other interest groups and central bank lending to governments

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Aristocracy	0.38							
	(0.51)							
Agrarian elites		0.57						
		(0.52)						
Party elites			0.34					
			(0.54)					
Religious				0.23				
				(0.50)				
Local elites					0.62			
					(0.58)			
Urban middle class						0.39		
						(0.58)		
Rural middle class							0.08	
							(0.58)	
Foreign government								0.55
								(0.59)
t	-3.14	-3.19	-3.40	-3.37	-3.05	-3.32	-3.47	-3.79
	(4.10)	(4.02)	(4.05)	(3.98)	(4.10)	(4.02)	(4.09)	(3.96)
t^2	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
t^3	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	471.28	481.37	512.29	508.44	459.08	501.29	523.81	570.39
	(615.73)	(603.49)	(607.25)	(596.72)	(614.85)	(603.22)	(614.35)	(593.59)
chi^2	3.58	3.50	3.11	2.48	3.12	5.47	2.48	3.59
$Prob > chi^2$	0.47	0.48	0.54	0.65	0.54		0.65	0.47
# Observations	2898	2898	2898	2898	2898	2898	2898	2898
Countries	43	43	43	43	43	43	43	43

Coefficients estimated using complementary log-log, standard errors clustered by country. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Other interest groups and central bank discounting

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Aristocracy	0.29							
	(0.41)							
Agrarian elites		0.20						
		(0.43)						
Party elites			0.67*					
			(0.38)					
Religious				-0.24				
				(0.55)				
Local elites					0.34			
					(0.41)			
Urban middle class						0.24		
						(0.44)		
Rural middle class							0.27	
							(0.46)	
Foreign government								0.39
								(0.57)
t	0.30	0.26	0.19	0.11	0.36	0.36	0.20	-0.12
	(2.75)	(2.73)	(2.81)	(2.75)	(2.70)	(2.83)	(2.72)	(2.68)
t^2	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
t^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-42.16	-34.72	-23.78	-12.44	-50.34	-50.97	-26.63	20.23
	(411.99)	(407.58)	(420.02)	(411.29)	(403.36)	(422.25)	(407.38)	(400.17)
chi^2	9.71	9.55	12.51	9.77	9.63	11.27	10.41	9.79
$Prob > chi^2$	0.05	0.05	0.01	0.04	0.05	0.02	0.03	0.04
# Observations	2467	2467	2467	2467	2467	2467	2467	2467
Countries	44	44	44	44	44	44	44	44

Coefficients estimated using complementary log-log, standard errors clustered by country. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A6: Interest groups and central bank lending to governments, logit

	Bivariate (1)	Full (2)	Bivariate (3)	Full (4)	Independent (5)	Europe+ (6)
Military	1.33***	1.39**			1.26*	2.87***
	(0.47)	(0.68)			(0.69)	(0.84)
Economic			1.01*	1.10		
			(0.55)	(0.68)		
War ongoing		0.19		0.25	0.25	-0.13
		(0.62)		(0.63)	(0.61)	(1.54)
Legislative constraints		-1.08		-1.33	-1.08	-3.89**
		(0.95)		(0.96)	(0.93)	(1.80)
Fiscal capacity		0.02		0.08	-0.02	-0.60
		(0.21)		(0.21)	(0.21)	(0.46)
GDP per capita (log)		-0.23		-0.78	-0.28	1.97**
		(0.53)		(0.53)	(0.54)	(0.94)
Sovereign default		0.14		0.39	0.10	
		(0.59)		(0.57)	(0.59)	
Inflation crisis		0.76		0.68	0.74	0.62
		(1.10)		(1.14)	(1.10)	(1.25)
Systemic crisis		1.38		1.47	1.40	
		(1.30)		(1.19)	(1.31)	
t	-3.31	2.44	-2.48	3.74	1.88	12.60
	(4.09)	(6.88)	(4.19)	(6.63)	(7.54)	(28.87)
t^2	0.01	-0.01	0.01	-0.01	-0.00	-0.03
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.06)
t^3	-0.00	0.00	-0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	499.34	-394.47	375.72	-588.61	-303.43	-2017.16
	(614.95)	(1056.76)	(628.90)	(1016.43)	(1161.76)	(4312.10)
chi^2	13.98	13.93	6.60	12.34	11.80	115.91
$Prob > chi^2$	0.01	0.24	0.16	0.34	0.06	0.00
# Observations	2898	2036	2898	2036	1866	1047
Countries	43	34	43	34	33	16

Coefficients estimated using logit with standard errors clustered by country. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A7: Interest groups and central bank discounting, logit

	Bivariate (1)	Full (2)	Bivariate (3)	Full (4)	Independent (5)	Europe+ (6)
Military	0.49	0.40				
	(0.38)	(0.52)				
Economic			1.06***	1.22***	1.39***	3.01*
			(0.39)	(0.47)	(0.51)	(1.63)
War ongoing		-0.43		-0.49	-0.54	-0.79
		(0.59)		(0.53)	(0.57)	(0.66)
Legislative constraints		-0.79		-0.97	-1.02	-0.02
		(0.90)		(0.79)	(0.73)	(1.26)
Fiscal capacity		0.40		0.50**	0.36*	0.94**
		(0.26)		(0.24)	(0.20)	(0.47)
GDP per capita (log)		-0.38		-0.79*	-0.78*	-2.49**
		(0.52)		(0.42)	(0.41)	(1.14)
Sovereign default		-0.51		-0.62	-0.77	
		(0.52)		(0.49)	(0.48)	
Inflation crisis		-0.01		0.06	-0.12	-0.07
		(1.08)		(1.10)	(1.14)	(1.35)
Systemic crisis		1.49*		1.61**	1.60**	0.46
		(0.81)		(0.71)	(0.69)	(0.82)
t	0.27	-7.46*	1.15	-6.56	-7.97*	2.26
	(2.72)	(4.41)	(2.84)	(4.62)	(4.65)	(6.81)
t^2	-0.00	0.02	-0.00	0.01	0.02*	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
t^3	0.00	-0.00	0.00	-0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	-35.77	1156.26*	-166.85	1021.30	1246.92*	-282.17
	(407.56)	(666.53)	(424.45)	(698.68)	(703.01)	(1011.62)
chi^2	9.98	24.67	15.84	36.95	29.50	52.28
$Prob > chi^2$	0.04	0.01	0.00	0.00	0.00	0.00
# Observations	2467	1509	2467	1509	1365	651
Countries	44	33	44	33	32	15

Coefficients estimated using pooled logit with standard errors clustered by country. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

A-3.1 Endogeneity

In order to assess whether endogeneity is influencing the findings, I employ a shift-share instrumental variables strategy, popularized by Bartik (1991). This approach utilizes shift-share instruments that exploit the differential effects of common shocks (the shift) across different units due to their specific exposures (the shares). Shift-share instruments are created by interacting the shift variable with the unit-specific shares.

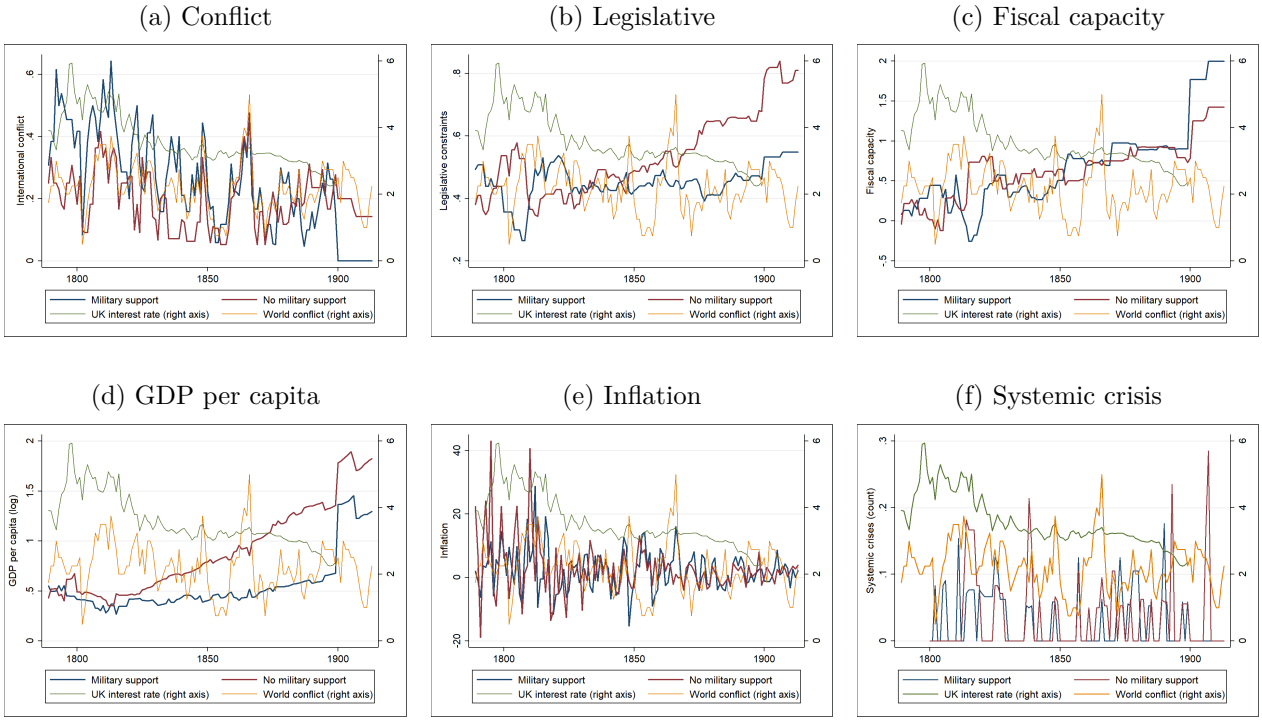
I construct two instruments: one for *Military* and one for *Economic*. For *Military*, the shift component is a global variable that impacts the likelihood of state i having a regime that counts the military as a support group. To measure this, I select the level of global conflict outside of state i, represented by the total number of ongoing international conflicts. The rationale is that a higher number of conflicts outside of state i may increase the likelihood of military support within state i. As no states are equally exposed to this common shock, we interact this variable with state i's propensity for conflict, as measured by the fraction of past years in which state i has been engaged in conflict since 1789. Using the fraction of past conflict is in the spirit of Lang (2021).[1] This instrument is relevant because changes in the level of global conflict can plausibly alter a country's likelihood of having a military-supported government in an exogenous manner.

For *Economic*, I use interest rates in the United Kingdom as the global shift variable. This choice is relevant because interest rate changes in the global hegemon have significant and plausibly exogenous effects on various economic variables around the world (Chen, Griffoli, and Sahay, 2014). For the share variable I use the fraction of past years a country has had a government with business support. This approach is also in the spirit of Lang (2021).

The instruments are both likely to satisfy the exclusion restriction, which states that an instrument z should only affect the dependent variable y through the independent variable x. In a shift-share setting, Goldsmith-Pinkham, Sorkin, and Swift (2020) suggest that the parallel-trends assumption (familiar to a difference-in-difference design) corresponds to the conditional share-exogeneity assumption for shift-share instruments. This assumption says that although variables can have different levels, their trends over time should remain parallel, absent any treatment. More broadly, this implies that no other factors associated with the interaction should uniquely influence outcomes across units. Figures A1 and A2 demonstrate that trends in all variables used in the analysis are broadly similar across groups of countries with and without military support (Figure A1) and with and without economic support (Figure A2).

[1] Lang (2021) uses the fraction of years a country has been under an IMF program as a share variable to estimate the economic impacts of IMF programs.

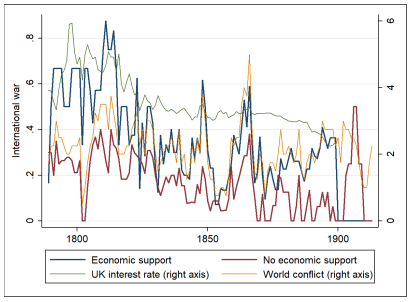
Figure A1: Testing parallel trends: Military support



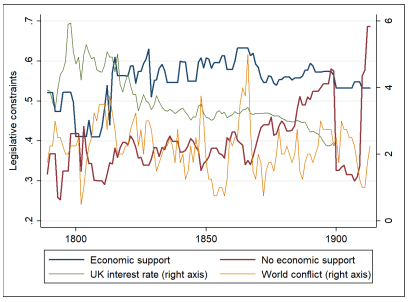
The results of the instrumental variables analysis are presented in Table A8. Overall, the analysis confirms that endogeneity does not drive the results. Models (1) and (7) show that there is a strong first stage in the cases supporting H1 and H2. In models (2) and (8), coefficient sizes and levels of statistical significance accord with other models in the main paper. This confirms that the relationships I identify between the composition of a country's supporting coalition and its central bank credit policies are not a product of endogeneity bias.

Figure A2: Testing parallel trends: Economic support

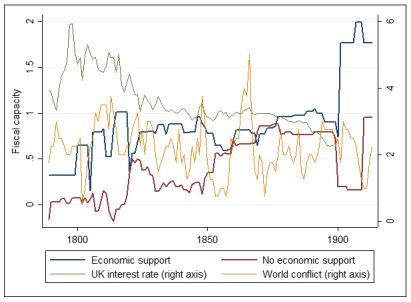
(a) Conflict



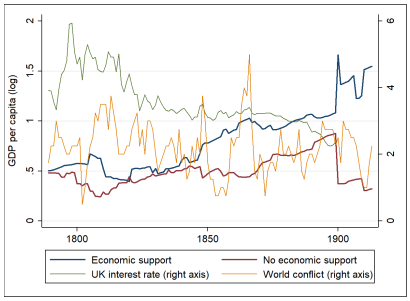
(b) Legislative



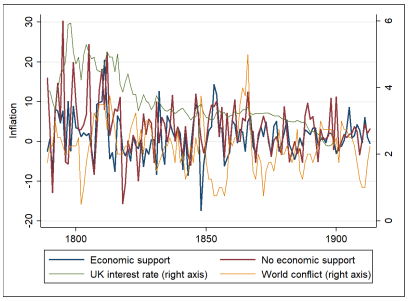
(c) Fiscal capacity



(d) GDP per capita



(e) Inflation



(f) Systemic crisis

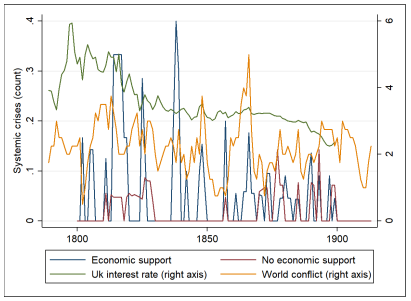


Table A8: Interest groups and central bank credit policies, instrumental variables

	Lend to government				*Lend to private sector*			
	First	Second	First	Second	First	Second	First	Second
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Instrument (Military)	0.11***				-0.05*			
	(0.03)				(0.03)			
Military		11.90**				18.44		
		(5.16)				(15.26)		
Instrument (Economic)			0.27***				0.24***	
			(0.01)				(0.01)	
Economic				1.52				1.22
				(1.17)				(0.84)
War ongoing	0.08***	-0.92	0.06**	0.43	-0.06**	0.93	0.05*	-0.76
	(0.02)	(0.86)	(0.02)	(0.70)	(0.03)	(1.25)	(0.03)	(0.66)
Legislative constraints	0.31***	-4.46**	0.25***	-1.82	0.45***	-8.72	0.24***	-1.36
	(0.04)	(1.94)	(0.04)	(1.45)	(0.04)	(6.72)	(0.04)	(1.10)
Fiscal capacity	-0.03***	0.22	-0.04***	0.19	0.05***	-0.42	-0.02**	0.62**
	(0.01)	(0.25)	(0.01)	(0.28)	(0.01)	(0.72)	(0.01)	(0.29)
GDP per capita (log)	-0.40***	3.95*	0.08***	-0.70	-0.45***	7.72	0.10***	-0.69
	(0.02)	(2.08)	(0.02)	(0.63)	(0.02)	(6.84)	(0.02)	(0.50)
Sovereign default	0.30***	-2.90*	0.01	0.31	0.21***	-4.32	0.05*	-0.88
	(0.02)	(1.57)	(0.02)	(0.65)	(0.03)	(3.29)	(0.03)	(0.67)
Inflation crisis	-0.11**	1.76	-0.04	0.89	-0.02	0.52	-0.01	0.08
	(0.05)	(1.17)	(0.05)	(1.09)	(0.05)	(1.14)	(0.05)	(1.06)
Systemic crisis	0.03	0.78	-0.15***	1.57	-0.09	3.29*	-0.12*	1.67**
	(0.05)	(1.15)	(0.05)	(1.11)	(0.07)	(1.71)	(0.07)	(0.79)
t	-0.79***	9.72	-0.89**	2.21	-0.28	-1.71	-0.90**	-3.64
	(0.23)	(8.42)	(0.36)	(12.56)	(0.26)	(6.47)	(0.39)	(7.68)
t^2	0.00***	-0.02	0.00**	-0.00	0.00	0.00	0.00**	0.01
	(0.00)	(0.02)	(0.00)	(0.03)	(0.00)	(0.01)	(0.00)	(0.02)
t^3	-0.00***	0.00	-0.00**	0.00	-0.00	-0.00	-0.00**	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Constant	127.70***	-1578.78	132.41**	-355.66	43.72	253.55	133.97**	589.60
	(35.89)	(1316.69)	(55.04)	(1909.34)	(39.26)	(1002.88)	(59.38)	(1155.85)
F or chi^2	92.31	16.02	149.68	10.30	71.70	19.69	94.52	25.20
$Prob > F$ or chi^2	0.00	0.19	0.00	0.59	0.00	0.07	0.00	0.01
# Observations	2036	2036	1711	1711	1509	1509	1347	1347
Countries	34	34	33	33	31	31	30	30

Coefficients estimated using OLS with two-stage least squares. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

A-3.2 ARDL error-correction models

Table A9: Interest groups and central bank credit policies, ARDL error correction form

	Government lending		Discounting	
	(1)	(2)	(3)	(4)
Δ Military	0.03		0.02	
	(0.02)		(0.02)	
Military$_{t-1}$	0.01***		0.00	
	(0.00)		(0.00)	
Government lending$_{t-1}$	-0.02***	-0.01***		
	(0.00)	(0.00)		
Discounting$_{t-1}$			-0.02***	-0.02***
			(0.00)	(0.00)
Δ Economic		0.03		0.03
		(0.02)		(0.02)
Economic$_{t-1}$		0.00		0.01**
		(0.00)		(0.00)
Constant	0.01***	0.01***	0.01***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)
F	11.77	9.17	15.67	13.52
$Prob > F$	0.00	0.00	0.00	0.00
# Observations	4376	4376	4251	4251
Countries	49	49	48	48

Coefficients estimated using OLS with standard errors clustered by country.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

A-4 Dataset

The leftmost column of Table A10 presents the comprehensive list of banks included in the database. It is important to reiterate that during the early stages of central banking, not all institutions performing central banking functions were necessarily established as fully-fledged central banks. After thorough examination, a total of 69 banks meet my inclusion criteria as described in the main text.

Table A10: Pre-1914 central banks

Bank	*Active*	*Jurisdiction*
Bank of Amsterdam	1609-1819	Amsterdam
Hamburger Bank	1619-1875	Hamburg
Banco del Giro	1619-1800	Venice
Nürnberg Banco	1621-1836	Nuremburg
Stockholms Banco	1657-1664	Sweden
Riksens Ständers Bank	1668-	Sweden
Bank of England	1694-	England
Bank of Scotland	1695-	Scotland
Wiener Stadtbank	1706-1816	Austria
Banco di gyro d'affrancatione	1706-1750	Cologne
Banque Generale	1716-1720	France
Copenhagen Assignation	1737-1813	Denmark
Royal Bank of Berlin	1765-1846	Prussia
Russian Assignation Bank	1768-1818	Russia
Caisse d'Escompte in Paris	1776-1793	France
Banco Nacional de San Carlos	1782-1829	Madrid
Bank of North America	1782-1785	USA
Bank of Ireland	1783-	Ireland
Bank of the United States	1791-1811	USA
Banque de France	1800-	France
Banco do Brazil	1808-1838	Brazil
Bank of Finland	1811-	Finland
Nederlandsche Bank	1814-	Netherlands
Austrian National Bank	1816-	Austria
Norges Bank	1816-	Norway
Second Bank of the US	1816-1836	USA
Bank of Montreal	1817-	Canada
Imperial Bank of Russia	1817-1859	Russia
Danmarks Nationalbank	1818-	Denmark
Banco de Lisboa	1822-1846	Lisbon

Bank of Poland	1828-1886	Poland
Banco de San Fernando	1829-1856	Spain
National Bank of Greece	1841-	Greece
Banco de Portugal	1846-	Portugal
Belgian National Bank	1850-	Belgium
Banco do Brazil	1851-1892	Brazil
Banco Filipino	1851-	Philippines
Banco Espanol de la Habana	1856-1898	Cuba
Banco de Espana	1856-	Spain
Bank of the Russian Empire	1860-1917	Russia
Imperial Ottoman Bank	1863-1924	Turkey
Banco Nacional de Chile	1865-1893	Chile
Banco Nacional de Bolivia	1871-	Bolivia
Banco Nacional	1872-1891	Argentina
Banque du Luxembourg	1873-1881	Luxembourg
Banco Nacional De Guatemala	1874-1876	Guatemala
Reichsbank	1876-1945	Germany
Bulgarian National Bank	1879-	Bulgaria
Banca Națională a României	1880-	Romania
Banco Nacional	1880-1894	Colombia
Bank of Japan	1882-	Japan
Banco Comercial/Banco de Venezuela	1883-	Venezuela
National Bank of Serbia	1883-	Serbia
Banco Nacional de México	1884-	Mexico
Landsbanki Islands	1885-	Iceland
Banco de la Naction	1891-1934	Argentina
Banca D'Italia	1893-	Italy
Banco de Chile	1894-	Chile
Banco Comercial y Agricola	1894-1925	Ecuador
Banco de la República Oriental del Uruguay	1896-	Uruguay
Banco Central de Colombia	1905-1909	Colombia
Swiss National Bank	1907-	Switzerland
Banco De La Republica	1907-	Paraguay
Banque Nationale de la Republique d'Haïti	1911-	Haiti
Commonwealth Bank of Australia	1911-	Australia
Banco de la Nacion Boliviana	1911-	Bolivia
Banco Nacional de Nicaragua	1912-	Nicaragua
International Bank of Costa Rica	1914-	Costa Rica
Federal Reserve System	1914-	USA

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