

Internet Appendix

The Effects of Government Interventions in the Financial Sector on Banking Competition and the Evolution of Zombie Banks

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Internet Appendix Table A.1

Crises and government interventions

The table provides in Panel A an overview about countries with banking crises, based on the classification in Laeven and Valencia (2010, 2013) and information from WEO. We also report the government responses to these crises. Countries marked with * are borderline crises. In the United States, the † indicates that the crisis started in 2007 but only became systemic in 2008 with deployment of government interventions in 2008. Panel B shows the time distribution of the government interventions, and Panel C reports on the frequency of government interventions per country.

Panel A: Overview						
Country (ISO code)	Crisis		Government interventions			
	<i>Start</i>	<i>End</i>	<i>Blanket guarantee</i>	<i>Liquidity support</i>	<i>Recapitalization</i>	<i>Nationalization</i>
Argentina (ARG)	2001	2003		2001	2001	2001
Austria (AUT)	2008	-		2008	2008	2008
Belgium (BEL)	2008	-		2008	2008	2008
Bulgaria (BGR)	1996	1997		1996	1996	1996
China (CHN)	1998	1998				
Colombia (COL)	1998	2000		1998	1998	1998
Croatia (HRV)	1998	1999			1998	1998
Czech Republic* (CZE)	1996	2000			1996	
Denmark (DNK)	2008	-	2008	2008	2008	2008
Dominican Republic (DOM)	2003	2004		2003		
Ecuador (ECU)	1998	2002	1998	1998	1998	1998
France* (FRA)	2008	-		2008	2008	
Germany (DEU)	2008	-	2008	2008	2008	2008
Greece* (GRC)	2008	-		2008	2008	
Hungary* (HUN)	2008	-		2008	2008	
Iceland (ISL)	2008	-				
Indonesia (IDN)	1997	2001	1997	1997	1997	1997
Ireland (IRL)	2008	-	2008	2008	2008	2008
Jamaica (JAM)	1996	1998	1996	1996	1996	1996
Japan (JPN)	1997	2001	1997		1997	1997
Kazakhstan* (KAZ)	2008	-		2008	2008	
Korea (KOR)	1997	1998	1997	1997	1997	1997
Latvia (LVA)	2008	-		2008	2008	2008
Luxembourg (LUX)	2008	-		2008	2008	2008
Malaysia (MYS)	1997	1999	1997	1997	1997	1997
Mongolia (MNG)	2008	-		2008	2008	2008
Netherlands (NLD)	2008	-		2008	2008	2008
Philippines (PHL)	1997	2001				
Portugal* (PRT)	2008	-		2008		2008
Russian Federation (RUS)	1998	1998		1998		1998
Russian Federation* (RUS)	2008	-		2008	2008	
Slovak Republic (SVK)	1998	2002				
Slovenia* (SVN)	2008	-		2008		
Spain* (ESP)	2008	-		2008		
Sweden* (SWE)	2008	-		2008	2008	
Switzerland* (CHE)	2008	-		2008	2008	
Thailand (THA)	1997	2000	1997	1997	1997	1997
Turkey (TUR)	2000	2001	2000	2000	2000	2000
Ukraine (UKR)	1998	1999		1998		
Ukraine (UKR)	2008	-		2008	2008	2008
United Kingdom (GBR)	2007	-		2007	2007	2007
United States (USA)†	2007	-		2008	2008	2008
Uruguay (URY)	2002	2005		2002	2002	2002
Vietnam (VNM)	1997	1997			2002	
Panel B: Time distribution			Government interventions			
	<i>Number of countries with crises</i>		<i>Blanket guarantee</i>	<i>Liquidity support</i>	<i>Recapitalization</i>	<i>Nationalization</i>
1996	3		1	2	3	2
1997	9		5	4	6	5
1998	13		1	4	3	4
1999	10		0	0	0	0
2000	9		1	1	1	1
2001	7		0	1	1	1
2002	4		0	1	1	1
2003	3		0	1	0	0
2004	1		0	0	0	0
2005	1		0	0	0	0
2006	0		0	0	0	0
2007	2		0	2	2	2
2008	20		3	18	15	9
2009	21		0	0	0	0
2010	21		0	0	0	0
Panel C: Frequency of interventions			Number of government interventions			
	<i>Government interventions per country</i>		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
% of countries with multiple interventions			13.51	24.95	31.89	29.64

Internet Appendix Table A.2

Bank level evidence for the effect of recapitalizations and nationalizations

We report panel data models for the effect of recapitalizations and nationalizations on Lerner indices in Panel A and net interest margins on the bank level in Panel B using manually collected information on recapitalizations and nationalizations. The information on recapitalizations and nationalizations only covers the recent crisis from 2007 onwards. Banks that receive capital injections or are nationalized are matched with observationally similar banks from the same country, the same year, and from the same bank type (commercial, savings, or cooperative bank). Additionally, we impose the criterion that the banks from the control group are similar in terms of size based on being in the same size quartile of the distribution of total assets to compare banks that are equivalent in terms of scope and scale of business activities. If multiple banks serve as a match for a treatment bank, we restrict the number of matches to a maximum of 5 banks in the control group. Our control variables are identical to the control variables used in the regressions on the aggregate (i.e., country) level. We include an asset-based Herfindahl-Hirschman index to capture banking system concentration, banking system size measured by the natural logarithm of banking system assets, a dummy that takes on the value of one if assisted mergers took place, a regulatory quality index, a dummy variable that indicates whether the country's financial system is bank-based, an index ranging from 1 to 3 for the level of financial development (based on domestic credit in % of GDP), the ratio of loan impairment charges to loans, a dummy that takes on the value of one if a country announced multiple interventions, GDP growth, inflation, real GDP per capita, real money market rates (ln) as a proxy for monetary policy, the ratio of government debt to GDP, and the change of the exchange rate (in local currency units per USD). On the bank level, we use the ratio of loan impairment charges to gross loans, and total assets (ln) as further control variables. We also include bank and year fixed effects, and run specifications which additionally include an interaction term of country fixed effects with year fixed effects. Standard errors are clustered at the bank level. Since different countries revert to different types of bailouts, we use for recapitalizations and nationalizations two different samples. We present the countries that are included in the two different samples at the bottom of the table. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Panel A: Lerner index					Panel B: Net interest margin			
Recapitalization	-0.034*	-0.033*			-0.052**	-0.054**		
	(-1.95)	(-1.82)			(-2.03)	(-1.99)		
Nationalization			-0.084*	-0.104*			0.002	0.001
			(-1.86)	(-1.87)			(0.31)	(0.15)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects × Year fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	7023	7023	890	890	7023	7023	890	890
R2	0.160	0.173	0.172	0.330	0.050	0.050	0.104	0.216
Number of interventions	589	589	26	26	589	589	26	26
Countries included	Austria, Belgium, Germany, France, Greece, Ireland, Luxembourg, Netherlands, United Kingdom, United States		Austria, Belgium, Denmark, Germany, Iceland, Ireland, Kazakhstan, Latvia, Luxembourg, Mongolia, Netherlands, Portugal, Ukraine, United Kingdom		Austria, Belgium, Germany, France, Greece, Ireland, Luxembourg, Netherlands, United Kingdom, United States		Austria, Belgium, Denmark, Germany, Iceland, Ireland, Kazakhstan, Latvia, Luxembourg, Mongolia, Netherlands, Portugal, Ukraine, United Kingdom	

Internet Appendix A.3

Computation of the Lerner index

The Lerner index is a widely used measure of banking competition. We follow Anginer, Demirgüç-Kunt, and Zhu (2014) for the computation of the index to capture the degree of market power of a bank by calculating the divergence between product prices and marginal costs of production. The mark-up of output prices over marginal cost is

$$L_{kt} = \frac{p_{kt} - mc_{kt}}{p_{kt}} \quad (\text{A.1})$$

where p_{kt} denotes output prices of bank k at time t (total revenue, interest and non-interest, divided by total assets) and mc_{kt} is the marginal cost obtained by differentiating a translog cost function with respect to total assets Q . We estimate the following translog cost function

$$\begin{aligned} \ln(C_{kt}) = & \alpha_k + \sum_{i=1}^2 \beta_i \ln(Q_{kt})^i + \sum_{i=1}^3 \gamma_i \ln(Z_{i,kt}) + \sum_{i=1}^3 \delta_i \frac{\ln(Q_{kt}) \ln(Z_{i,kt})}{2} + \sum_{i=1}^3 \sum_{j=1}^3 \delta_{ij} \frac{\ln(Z_{i,kt}) \ln(Z_{j,kt})}{2} + \\ & + \lambda_1 \tau_t + \lambda_2 \tau_t^2 + \lambda_3 \tau_t \ln(Q_{kt}) + \lambda_4 \tau_t \ln(Z_{1,kt}) + \lambda_5 \tau_t \ln(Z_{2,kt}) + \lambda_6 \tau_t \ln(Z_{3,kt}) + \xi_{kt} + \mu_k \end{aligned} \quad (\text{A.2})$$

where C is total costs (the sum of interest expenses, commission and fee expenses, trading expenses, personnel expenses, and other administrative and operating expenses), Q represents total assets, Z_1 is the ratio of interest expenses to total deposits and money market funding (*proxy* for input price of deposits), Z_2 is the ratio of personal expenses to total assets (*proxy* for input price of labor), and Z_3 is the ratio of other operating and administrative expenses to total assets (*proxy* for input price of equipment/fixed capital). All these variables enter the regression in logs. The term μ_k denotes bank level fixed effects. The cost equation specified above includes trend terms τ that capture cost-reducing technological changes over time. The estimation of the cost function in (A.2) is undertaken under the restrictions of symmetry and linear homogeneity in the price of inputs. Note that the results do not change if these constraints are lifted. The Lerner index, L , takes values between 0 and 1, whereby higher values indicate more market power (and, hence, less competition). Calculation of the Lerner index is based on data for all commercial, savings, and cooperative banks for the years 1996–2010. The

bank data are obtained from BankScope. In total, 181,830 bank-year observations for 21,988 banks in 124 countries are used to compute the index.

Summary statistics

The table presents the number of observations, means, and standard deviations for the variables used to calculate the Lerner index. All bank level data are obtained from BankScope.

Variable	<i>Observations</i>	<i>Mean</i>	<i>S.D.</i>	<i>Min</i>	<i>Max</i>
Total assets (ln)	181,830	5.716	2.196	-4.900	19.469
Total costs (ln)	181,830	2.779	2.156	-7.301	16.754
Interest expenses/Total deposits, money market and short-term funding (ln)	181,830	-3.634	0.800	-11.838	3.399
Personal expenses/Total assets (ln)	181,830	-4.260	0.579	-11.415	-0.452
Operating and administrative expenses/Total assets (ln)	181,830	-4.390	0.693	-11.331	0.372

Internet Appendix Table A.4

Regressions with additional control variables for expansionary monetary policy and increases in public debt during crises

This table presents additional difference-in-difference regressions for the effect of blanket guarantees, liquidity support, recapitalizations, and nationalizations on competition, measured by the Lerner index in Panel A, and by the net interest margin in Panel B. The regressions include two additional control variables: a variable that measures monetary expansion, defined as the change in the monetary base (M0) between its peak during the crisis and its level one year prior to the crisis, expressed in % of GDP, and a variable that captures increases in public debt in % of GDP, measured over $[t-1, t+3]$, where t is the starting year of the crisis. For the 2007-2009 crises, it is computed as the difference between pre- and post-crisis debt projections. The other control variables (not shown for brevity) are an asset-based Herfindahl-Hirschman index to capture banking system concentration, banking system size measured by the natural logarithm of banking system assets, a dummy that takes on the value of one if assisted mergers took place, a regulatory quality index, a dummy variable that indicates whether the country's financial system is bank-based, an index ranging from 1 to 3 for the level of financial development (based on domestic credit in % of GDP), the ratio of loan impairment charges to loans, a dummy that takes on the value of one if a country announced multiple interventions, GDP growth, inflation, real GDP per capita, real money market rates (ln) as a proxy for monetary policy, the ratio of government debt to GDP, and the change of the exchange rate (in local currency units per USD). Country and year dummies included. Standard errors are clustered on the country level. Robust t -statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A: Lerner index					Panel B: Net interest margin			
Monetary expansion	-0.002 (-0.76)	-0.001 (-0.33)	-0.002 (-0.63)	-0.002 (-0.72)	-0.001 (-0.59)	0.000 (0.09)	-0.001 (-0.43)	-0.001 (-0.59)
Increase in public debt	-0.000 (-0.50)	-0.000 (-0.57)	-0.000 (-0.61)	-0.000 (-0.58)	-0.000 (-0.62)	-0.000 (-0.66)	-0.000 (-0.73)	-0.000 (-0.44)
Blanket guarantee	-0.024 (-0.96)				-0.013 (-0.52)			
Liquidity support		-0.031* (-1.85)				-0.028* (-1.84)		
Recapitalizations			-0.038** (-2.11)				-0.034** (-2.24)	
Nationalizations				0.000 (0.01)				-0.039** (-2.09)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1687	1687	1687	1687	1687	1687	1687	1687
R2	0.242	0.244	0.244	0.242	0.661	0.664	0.665	0.665
Number of interventions	11	34	32	26	11	34	32	26

Internet Appendix Table A.5

Effect of government interventions and assisted mergers on banking system concentration

This table presents difference-in-difference regressions for the effect of blanket guarantees, liquidity support, recapitalizations, nationalizations, and, importantly, of assisted mergers on concentration in banking systems, measured by the Herfindahl-Hirschman index. The key variable of interest is the dummy variable that takes on the value of one if a country used assisted mergers to resolve distressed institutions or zero otherwise. The control variables (not shown for brevity) are banking system size, measured by the natural logarithm of banking system assets, a regulatory quality index, a dummy variable that indicates whether the country's financial system is bank-based, an index ranging from 1 to 3 for the level of financial development (based on domestic credit in % of GDP), the ratio of loan impairment charges to loans, a dummy that takes on the value of one if a country announced multiple interventions, GDP growth, inflation, real GDP per capita, real money market rates (ln) as a proxy for monetary policy, the ratio of government debt to GDP, and the change of the exchange rate (in local currency units per USD). Robust *t*-statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Country and year dummies included. Standard errors are clustered on the country level.

Dependent variable	Concentration (HHI)	Concentration (HHI)	Concentration (HHI)	Concentration (HHI)
Assisted merger	-0.036 (-0.85)	-0.040 (-0.96)	-0.043 (-1.04)	-0.050 (-1.15)
Blanket guarantee	-0.026 (-0.52)			
Liquidity support		-0.010 (-0.29)		
Recapitalizations			0.012 (0.34)	
Nationalizations				0.041 (1.05)
Control variables	Yes	Yes	Yes	Yes
Observations	1687	1687	1687	1687
R-squared	0.547	0.547	0.547	0.548
Number of interventions	11	34	32	26

Internet Appendix Table A.6

Additional robustness tests

We present additional tests. The first test in the first subpanel clusters standard errors by year. The second test in the first subpanel includes an additional control variable which takes on the value of one if a country also set up asset management companies and restructuring agencies which assume distressed bank assets. In the second subpanel we account for the too-big-to-fail (TBTf) and the too-many-to-fail (TMTf) effects. We consider the too-big-to-fail effect by removing countries whose HHI lies above the 95th percentile of the distribution of the concentration variable, and we account for the too-many-to-fail effect by excluding countries whose total capital ratio is below the 5th percentile of the capital ratio. The third subpanel removes high income economies and emerging markets. The fourth subpanel uses regression weights where we use the inverse of the number of interventions as a weight to assign less importance to countries with multiple interventions. The last test additionally includes a dummy variable for the year during the onset of the crisis. All regressions contain the control variables discussed in the notes to Table 3 (not shown). We use the Lerner index in Panel A and the net interest margin in Panel B as dependent variable. Country and year dummies included. Standard errors clustered on the country level unless stated otherwise. Robust *t*-statistics in parentheses. *** *p*<0.01, ** *p*<0.05, * *p*<0.1.

Panel A: Lerner index					Panel B: Net interest margins									
Subpanel: Clustering and additional controls					Clustering of SE by year					Controlling for asset management and restructuring companies				
Blanket guarantee	-0.025 (-1.04)									-0.027 (-1.12)				
Liquidity support		-0.033** (-2.28)									-0.033* (-1.95)			
Recapitalizations			-0.039*** (-3.38)									-0.038** (-2.14)		
Nationalizations				-0.001 (-0.08)									-0.002 (-0.08)	
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687
R2	0.242	0.243	0.244	0.241	0.241	0.243	0.244	0.241	0.241	0.661	0.663	0.664	0.665	0.668
Number of interventions	11	34	32	26	11	34	32	26	11	34	32	26	11	34
Subpanel: TBTf and TMTf					Accounting for the too-big-to-fail effect (TBTf)					Accounting for the too-many-to-fail effect (TMTf)				
Blanket guarantee	-0.025 (-1.00)									-0.009 (-0.34)				
Liquidity support		-0.035** (-2.04)									-0.028* (-1.81)			
Recapitalizations			-0.040** (-2.18)									-0.034** (-2.18)		
Nationalizations				-0.002 (-0.12)									-0.039** (-2.08)	
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610	1610
R2	0.235	0.237	0.237	0.234	0.671	0.674	0.675	0.676	0.655	0.658	0.659	0.660	0.248	0.250
Number of interventions	11	34	32	26	10	33	31	25	11	34	32	26	10	33
Subpanel: Subsamples					High income economies excluded					Emerging market economies excluded				
Blanket guarantee	-0.087** (-2.29)									-0.016 (-0.46)				
Liquidity support		-0.049 (-1.51)									-0.042** (-2.08)			
Recapitalizations			-0.061* (-1.89)									-0.044* (-1.95)		
Nationalizations				-0.027 (-0.69)									-0.005 (-0.21)	
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1223	1223	1223	1223	1381	1381	1381	1381	1223	1223	1223	1223	1381	1381
R2	0.257	0.258	0.259	0.256	0.246	0.249	0.249	0.246	0.672	0.676	0.675	0.678	0.657	0.660
Number of interventions	7	21	20	17	6	24	22	17	7	21	20	17	6	24
Subpanel: Weights, accounting for onset of crises					Weighted regressions					Controlling for onset of crises				
Blanket guarantee	-0.025 (-1.01)									-0.025 (-1.04)				
Liquidity support		-0.030* (-1.88)									-0.033* (-1.92)			
Recapitalizations			-0.042** (-2.28)									-0.039** (-2.11)		
Nationalizations				0.001 (0.04)									-0.001 (-0.04)	
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687	1687
R2	0.247	0.247	0.248	0.247	0.242	0.243	0.244	0.241	0.666	0.667	0.668	0.668	0.661	0.664
Number of interventions	11	34	32	26	11	34	32	26	11	34	32	26	11	34

Internet Appendix Table A.7

Competition measurement: Panzar and Rosse (1987) H-Statistic as dependent variable

This table presents an additional test that rules out that competition measurement drives our inferences. We use the Panzar and Rosse (1987) H-Statistic as an alternative competition measure. The explanatory variables in these regressions are identical to the ones used in the analyses shown in Table 3. Unlike the Lerner index and the net interest margin, the H-Statistic increases in competition. The H-Statistic measures the effect of revenue elasticities with respect to factor input prices and is a measure of contestability. The control variables (not shown for brevity) are an asset-based Herfindahl-Hirschman index to capture banking system concentration, banking system size measured by the natural logarithm of banking system assets, a dummy that takes on the value of one if assisted mergers took place, a regulatory quality index, a dummy variable that indicates whether the country's financial system is bank-based, an index ranging from 1 to 3 for the level of financial development (based on domestic credit in % of GDP), the ratio of loan impairment charges to loans, a dummy that takes on the value of one if a country announced multiple interventions, GDP growth, inflation, real GDP per capita, real money market rates (ln) as a proxy for monetary policy, the ratio of government debt to GDP, and the change of the exchange rate (in local currency units per USD). Country and year dummies included. Standard errors are clustered on the country level. Robust *t*-statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Dependent variable	H-Statistic	H-Statistic	H-Statistic	H-Statistic
Blanket guarantee	0.042* (1.79)			
Liquidity support		0.018 (0.97)		
Recapitalizations			0.031* (1.79)	
Nationalizations				0.037** (2.08)
Control variables	Yes	Yes	Yes	Yes
Observations	1,538	1,538	1,538	1,538
R2	0.836	0.836	0.837	0.837
Number of interventions	11	33	31	25

Internet Appendix Table A.8

Initial market conditions and the role of transparency

Panel A examines initial conditions. We present coefficients from difference-in-difference regressions of the effect of the interactions of blanket guarantees, liquidity support, recapitalizations, and nationalizations with initial conditions of concentration, foreign bank ownership, activity restrictions, entry restrictions, and explicit deposit insurance on competition. Each cell represents a single regression. All other coefficients are suppressed to preserve space. All regressions include the control variables discussed in the notes to Table 3. Since the difference-in-difference estimator requires a control group for which the initial conditions have to be defined, we use a 1:n matching procedure that matches a country that recorded any one of these government interventions with a group of comparable countries based on year and World Bank income category. Panel B tests the effect of transparency by interacting a Transparency index with the four different government interventions. We use a Transparency index which consists of a dummy variable that takes on the value one if a compulsory external audit is required and an accounting index that is increasing in the quality of bank accounts. Country and year dummies included. Standard errors are clustered on the country level. Robust *t*-statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A: The role of initial conditions

Subpanel: Lerner index	Market structure	Contestability	Contestability	Contestability	Moral hazard
Government intervention interacted with	Concentration HHI (initial conditions)	Foreign bank ownership (initial conditions)	Activity restrictions index (initial conditions)	Entry restrictions index (initial conditions)	Explicit deposit insurance (initial conditions)
Blanket guarantee × Column variable	-0.327*** (-7.74)	0.115*** (2.92)	-0.004 (-0.38)	-0.051*** (-3.34)	0.069 (0.64)
Liquidity support × Column variable	-0.194*** (-2.75)	0.126** (2.10)	-0.003 (-0.36)	-0.024 (-1.65)	0.049 (1.14)
Recapitalizations × Column variable	-0.261*** (-4.33)	0.131** (2.09)	-0.009 (-1.22)	-0.030** (-2.09)	0.064 (1.52)
Nationalizations × Column variable	-0.231** (-2.34)	0.144** (2.07)	-0.000 (-0.01)	-0.027* (-1.76)	0.077* (1.77)
Subpanel: Net interest margin					
Blanket guarantee × Column variable	-0.061 (-0.75)	-0.008 (-0.18)	0.030*** (3.06)	0.009 (0.63)	0.020 (0.52)
Liquidity support × Column variable	-0.043 (-0.71)	-0.033 (-0.70)	0.012 (1.40)	0.008 (1.48)	0.112*** (2.82)
Recapitalizations × Column variable	-0.060 (-0.95)	-0.023 (-0.48)	0.002 (0.16)	0.004 (0.65)	0.122*** (3.52)
Nationalizations × Column variable	-0.080 (-1.17)	-0.039 (-0.56)	0.017* (1.77)	0.005 (1.01)	0.110** (2.68)

Panel B: The role of transparency

Subpanel: Lerner index					Subpanel: Net interest margin			
Transparency index	-0.010 (-1.02)	-0.013 (-1.24)	-0.011 (-1.16)	-0.013 (-1.27)	-0.006 (-1.46)	-0.008* (-1.94)	-0.007* (-1.70)	-0.008* (-1.89)
Blanket guarantee	-0.215 (-0.99)				-0.134** (-2.43)			
Blanket guarantee × Transparency	0.045 (0.89)				0.026** (2.19)			
Liquidity support		-0.175** (-2.15)				-0.135** (-2.46)		
Liquidity support × Transparency		0.036** (2.08)				0.028*** (2.83)		
Recapitalizations			-0.222** (-2.20)				-0.113* (-1.84)	
Recapitalizations × Transparency			0.042* (1.80)				0.023* (1.81)	
Nationalizations				-0.188** (-2.08)				-0.152*** (-3.16)
Nationalizations × Transparency				0.044** (2.16)				0.030*** (3.44)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1142	1142	1142	1142	1142	1142	1142	1142
R2	0.320	0.321	0.323	0.322	0.724	0.726	0.725	0.726
Number of interventions	9	26	25	21	9	26	25	21

Internet Appendix Table A.9
The role of bank charter values

This table presents difference-in-difference regressions for the effect of blanket guarantees, liquidity support, recapitalizations, and nationalizations on banking competition, measured by the Lerner index in Panel A and the net interest margin in Panel B. These regressions additionally consider the role of bank charter values, interacted with the government interventions. We approximate bank charter values by the ratio of current deposits to total deposits and real money market and short-term funding. The control variables (not shown for brevity) are an asset-based Herfindahl-Hirschman index to capture banking system concentration, banking system size measured by the natural logarithm of banking system assets, a dummy that takes on the value of one if assisted mergers took place, a regulatory quality index, a dummy variable that indicates whether the country's financial system is bank-based, an index ranging from 1 to 3 for the level of financial development (based on domestic credit in % of GDP), the ratio of loan impairment charges to loans, a dummy that takes on the value of one if a country announced multiple interventions, GDP growth, inflation, real GDP per capita, real money market rates (ln) as a proxy for monetary policy, the ratio of government debt to GDP, and the change of the exchange rate (in local currency units per USD). Country and year dummies included. Standard errors are clustered on the country level. Robust *t*-statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A: Lerner index					Panel B: Net interest margin			
Charter value	0.004 (0.14)	0.009 (0.30)	0.006 (0.22)	0.004 (0.14)	0.033 (1.61)	0.026 (1.29)	0.030 (1.42)	0.029 (1.41)
Blanket guarantee	-0.003 (-0.07)				-0.030 (-1.30)			
Blanket guarantee × Charter value	-0.042 (-0.40)				-0.016 (-0.46)			
Liquidity support		-0.008 (-0.29)				-0.042** (-2.05)		
Liquidity support × Charter value		-0.061 (-0.98)				0.040 (1.22)		
Recapitalizations			-0.020 (-0.69)				-0.037** (-2.07)	
Recapitalizations × Charter value			-0.046 (-0.74)				0.008 (0.26)	
Nationalizations				0.016 (0.61)				-0.045** (-2.20)
Nationalizations × Charter value				-0.029 (-0.47)				0.016 (0.52)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1600	1600	1600	1600	1600	1600	1600	1600
R2	0.253	0.255	0.255	0.253	0.663	0.665	0.665	0.666
Number of interventions	10	32	30	24	10	32	30	24

Internet Appendix Table A.10
Effects of government interventions on the components of the Lerner index
(prices and marginal cost)

This table presents difference-in-difference regressions with the components of the Lerner index, prices in Panel A and marginal cost in Panel B as dependent variables. Marginal costs are obtained by differentiating the Translog cost function shown in Internet Appendix A.3. The control variables (not shown for brevity) are an asset-based Herfindahl-Hirschman index to capture banking system concentration, banking system size measured by the natural logarithm of banking system assets, a dummy that takes on the value of one if assisted mergers took place, a regulatory quality index, a dummy variable that indicates whether the country's financial system is bank-based, an index ranging from 1 to 3 for the level of financial development (based on domestic credit in % of GDP), the ratio of loan impairment charges to loans, a dummy that takes on the value of one if a country announced multiple interventions, GDP growth, inflation, real GDP per capita, real money market rates (ln) as a proxy for monetary policy, the ratio of government debt to GDP, and the change of the exchange rate (in local currency units per USD). Country and year dummies included. Standard errors are clustered on the country level. Robust *t*-statistics in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Panel A: Lerner index components - Prices					Panel B: Lerner index components - Marginal cost			
Blanket guarantee	-0.027*				-0.025*			
	(-1.72)				(-1.88)			
Liquidity support		-0.017**				-0.014**		
		(-2.39)				(-2.12)		
Recapitalizations			-0.013				-0.013	
			(-1.47)				(-1.49)	
Nationalizations				-0.019**				-0.019**
				(-2.27)				(-2.55)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1687	1687	1687	1687	1687	1687	1687	1687
R2	0.744	0.745	0.743	0.744	0.738	0.738	0.737	0.739
Number of interventions	11	34	32	26	11	34	32	26