Appendix to:

Bank Concentration, Competition, and Crises:
First results

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Appendix Table 1. Bank Concentration and Banking Crises across Countries

GDP per capita is in constant dollars, averaged over the entire sample period. Crisis period denotes the years in which each country experienced a systemic banking crisis and the duration of said crisis. Concentration is calculated as the fraction of assets held by the three largest banks in each country, averaged over the sample period. Crisis Definition is coded 1 for crises wherein non-performing loans exceeded 10%, 2 for cost of crisis greater than 2% of GDP, 3 for crises where the majority of the banks were insolvent and emergency measures were taken and 4 for crises where large-scale nationalization took place. Detailed variable definitions and sources are given in the data appendix.

	GDP per capita	Crisis Period	Concentration	Crisis Definition
Australia	17913		0.65	
Austria	25785		0.75	
Bahrain	9398		0.93	
Belgium	24442		0.64	
Benin	362	(1988-90)	1.00	1, 2, 3
Botswana	2781		0.94	
Burundi	186		1.00	
Cameroon	790	(1987-93, 1995-98)	0.95	1, 3
Canada	18252		0.58	
Chile	3048	(1981-87)	0.49	1, 2, 3
Colombia	1802	(1982-85)	0.49	2, 3
Congo	940		1.00	
Cote d'Ivoire	843	(1988-91)	0.96	1, 2, 3
Cyprus	9267		0.88	
Denmark	31049		0.78	
Dominican Republic	1426		0.65	
Ecuador	1516	(1995-97)	0.40	1, 2, 3
Egypt	905		0.67	
El Salvador	1450	(1989)	0.84	1
Finland	23304	(1991-94)	0.85	2, 4
France	24227		0.44	
Germany	27883		0.48	
Ghana	356	(1982-89)	0.89	1, 2, 3
Greece	10202		0.79	
Guatemala	1415		0.37	
Guyana	653	(1993-95)	1.00	3
Honduras	694		0.44	
India	313	(1991-97)	0.47	1, 2
Indonesia	761	(1992-97)	0.44	1, 2, 4

	GDP per capita	Crisis Period	Concentration	Crisis Definition
Ireland	13419		0.74	
Israel	13355	(1983-84)	0.84	2, 3
Italy	17041	(1990-95)	0.35	3
Jamaica	1539	(1996-97)	0.82	4
Japan	35608	(1992-97)	0.24	1, 2, 4
Jordan	1646	(1989-90)	0.92	1, 2, 3
Kenya	336	(1993)	0.74	1
Korea	6857	(1997)	0.31	1, 2, 4
Lesotho	356		1.00	
Malaysia	3197	(1985-88, 1997)	0.54	1, 2, 3
Mali	260	(1987-89)	0.91	1
Mauritius	2724		0.94	
Mexico	3240	(1982, 1994-97)	0.63	4
Nepal	179	(1988-97)	0.90	1, 3
Netherlands	22976		0.76	
New Zealand	15539		0.77	
Nigeria	251	(1991-95)	0.83	1, 3
Norway	28843	(1987-93)	0.85	2, 4
Panama	2824	(1988-89)	0.42	3
Papua New Guinea	1024	(1989-97)	0.87	1, 3
Peru	2458	(1983-90)	0.69	1, 4
Philippines	1070	(1981-87)	0.49	1, 2, 3
Portugal	8904	(1986-89)	0.46	1
Senegal	562	(1988-91)	0.94	1, 2, 3
Sierra Leone	260	(1990-97)	1.00	1, 3
Singapore	20079		0.71	
South Africa	3680	(1985)	0.77	1
Sri Lanka	588	(1989-93)	0.86	1, 2
Swaziland	1254	(1995)	0.95	4
Sweden	24845	(1990-93)	0.89	1, 2, 3
Switzerland	42658		0.77	

	GDP per capita	Crisis Period	Concentration	Crisis Definition
Thailand	1886	(1983-87, 1997)	0.54	1, 2, 3
Togo	366		1.00	
Tunisia	1831		0.63	
Turkey	2451	(1982, 1991, 1994)	0.45	2, 3
United Kingdom	16883		0.57	
United States	24459	(1980-92)	0.19	1, 2
Uruguay	5037	(1981-85)	0.87	1, 2
Venezuela	3558	(1993-97)	0.52	1, 2, 3
Zambia	464		0.84	

Appendix Table 2: Subsample Summary Statistics

Banking crisis is a crisis dummy, which takes on the value of one if there is a systemic and the value of zero otherwise. Growth is the rate of growth of real GDP. Terms of trade is changes in terms of trade of goods and services. Real interest rate is the nominal interest rate minus the contemporaneous rate of inflation. Inflation is the rate of change of the GDP deflator. M2/reserves is the ratio of M2 to international reserves. Credit growth is the real growth of domestic credit, lagged two periods. Depreciation is the rate of change of the exchange rate. Moral hazard is an aggregate index of moral hazard associated with varying deposit insurance schemes. Concentration is calculated as the fraction of assets held by the three largest banks in each country, averaged over the sample period. Fraction of entry applications denied is the number of entry applications denied as a fraction of the number of applications received from domestic and foreign entities. Activity restrictions measures the degree to which a bank is restricted from engaging in business of securities underwriting, insurance underwriting and selling, and from real estate investment, management, and development. Required reserves is the percentage of reserves regulators require banks to hold. Capital regulatory index measures capital stringency in the banking system. Banking freedom is an indicator of the relative openness of the banking system. Economic freedom is a composite measure of institutional factors determining economic freedom. KKZ_composite is a composite measure of governance indicators. Legal origin are three dummies UK, France and Germany, which take the value 1 for each legal origin respectively. Latitude is the absolute value of the latitude of each country normalized to lie between zero and one. Religion includes three variables, Catholic, Muslim, Protestant which indicate the percentage of the population that follows a particular religion. Ethnic Fractionalization is the probability that two randomly selected individuals in a country will not speak the same language. Detailed variable definitions and sources are given in the data appendix.

Panel A: Crisis Years

Variable	Obs.	Mean	St. Dev.	Maximum	Minimum
Growth	196	1.82	5.05	-13.45	16.58
Terms of trade change	196	-0.50	9.98	-37.14	46.26
Real interest rate	41	-20.57	158.00	-1003.57	63.44
Inflation	41	53.32	199.52	-1.31	1270.03
M2/reserves	41	33.45	76.75	1.13	372.23
Depreciation	41	0.21	0.33	-0.09	1.56
Credit Growth$_{t-2}$	41	5.28	7.79	-7.18	29.92
Real GDP per capita	41	5833.99	9544.83	194.75	40563.59
Moral hazard	41	-0.70	2.48	-2.49	3.41
Concentration	41	0.70	0.24	0.19	1
Fraction of entry applications denied	20	0.27	0.31	0	1
Activity restrictions	29	10.07	2.02	7	14
Required reserves	25	13.61	13.09	0	43
Capital regulatory index	28	5.46	1.86	2	8
Banking freedom	41	3.16	0.70	2	5
Economic freedom	41	3.07	0.47	2.18	4.15
KKZ_composite	41	0.12	0.68	-1	1.62
British Legal Origin	41	0.39	0.49	0	1
French Legal Origin	41	0.49	0.51	0	1
German Legal Origin	41	0.05	0.22	0	1
Latitude	41	0.23	0.19	0.01	0.71
Catholic	41	32.54	37.97	0	96.6
Muslim	41	16.53	28.22	0	99.2
Protestant	41	15.74	25.52	0	97.8
Ethnic Fractionalization	41	0.37	0.33	0	0.86

Panel B: Non-crisis Years

Variable	Obs.	Mean	St. Dev.	Maximum	Minimum
Growth	942	3.61	3.98	-16.40	23.60
Terms of trade change	942	0.31	10.04	-51.45	63.24
Real interest rate	69	1.30	16.34	-40.74	112.20
Inflation	69	14.56	15.75	-0.90	70.53
M2/reserves	69	20.19	40.61	0.31	309.52
Depreciation	69	0.09	0.11	-0.04	0.42
Credit Growth$_{t-2}$	69	6.40	5.53	-4.94	27.32
Real GDP per capita	69	8253.35	10501.90	159.14	42573.13
Moral hazard	69	-0.86	2.11	-2.49	3.39
Concentration	69	0.71	0.22	0.19	1
Fraction of entry applications denied	41	0.20	0.28	0	1
Activity restrictions	53	9.38	2.55	4	14
Required reserves	41	11.81	11.67	0	43
Capital regulatory index	52	5.52	1.69	2	8
Banking freedom	67	3.37	0.85	2	5
Economic freedom	67	3.21	0.61	1.9	4.5
KKZ_composite	69	0.32	0.81	-1.03	1.72
British Legal Origin	69	0.39	0.49	0	1
French Legal Origin	69	0.48	0.50	0	1
German Legal Origin	69	0.07	0.26	0	1
Latitude	69	0.29	0.20	0.01	0.71
Catholic	69	36.08	36.88	0	96.6
Muslim	69	15.00	28.27	0	99.4
Protestant	69	16.36	24.00	0.00	97.8
Ethnic Fractionalization	68	0.32	0.30	0	0.86

Appendix Table 3: Data Appendix

Variable Name	Definition	Source
Banking crisis	Dummy takes on value of one during episodes identified as a systematic banking crises	a
Growth	Rate of growth of real GDP	b
Terms of trade change	Change in the terms of trade	b
Real interest rate	Nominal interest rate minus the contemporaneous rate of inflation	c
Inflation	Rate of change of GDP deflator	c
M2/reserves	Ratio of M2 to international reserves	c
Depreciation	Rate of depreciation	c
Credit growth	Rate of growth of real domestic credit to the private sector (line 32d divided by GDP deflator)	c
GDP/CAP	Real GDP per capita	b
Moral hazard index	Principal component indicator measuring the generosity of deposit insurance, based on co-insurance, coverage of foreign currency and interbank deposits, type and source of funding, management, membership and level of explicit coverage.	a
Concentration	Degree of concentration in the banking industry, calculated as the fraction of assets held by the three largest banks. Averaged over the 1988-97 period.	d
Mean Bank Size	Total banking assets divided by number of banks.	e
Fraction of entry applications denied	Number of entry applications denied as a fraction of the number of applications received from domestic and foreign entities	f
Activity restrictions	Sum of four measures that indicate whether bank activities in the securities, insurance, and real estate markets and ownership and control of nonfinancial firms are (1) unrestricted, (2) permitted, (3) restricted, or (4) prohibited	f
Required reserves	Ratio of reserves required to be held by banks	f

Variable Name	Definition	Source
Capital regulatory index	Summary measure of capital stringency: sum of overall and initial capital stringency. Higher values indicate greater stringency.	f
Banking Freedom	Indicator of relative openness of banking and financial system: specifically, whether the foreign banks and financial services firms are able to operate freely, how difficult it is to open domestic banks and other financial services firms, how heavily regulated the financial system is, the presence of state-owned banks, whether the government influences allocation of credit, and whether banks are free to provide customers with insurance and invest in securities (and vice-versa). The index ranges in value from 1 (very low – banks are primitive) to 5 (very high – few restrictions). Averaged over 1995-97 period.	g
Economic Freedom	Composite of 10 institutional factors determining economic freedom: trade policy, fiscal burden of government, government intervention in the economy, monetary policy, capital flows and foreign investment, banking and finance, wages and prices, property rights, regulation, and black market activity. Individual factors are weighted equally to determine overall score of economic freedom. A high score signifies an institutional or consistent set of policies that are most conducive to economic freedom, while a score close to 1 signifies a set of policies that are least conducive. Averaged over 1995-97 period.	g
KKZ_composite	Composite of six governance indicators (1998 data): voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and corruption. Individual factors are weighted equally to determine overall score of economic freedom. Higher values correspond to better governance outcomes.	h
Legal origin	Three dummy variables that take the value 1 if the country has British, French or German legal origin and zero otherwise.	i
Latitude	Absolute value of the latitude of a country, scales between zero and one.	i
Religion	Three variables that capture the percentage of population that is Catholic, Muslim and Protestant. Variables range from 0 to 100.	i
Ethnic Fractionalization	Probability that two randomly selected individuals in a country will not speak the same language.	J

a   Demirguc-Kunt and Detragaiche (2002)
b   World Development Indicators, World Bank
c   International Financial Statistics, International Monetary Fund
d   Beck, Demirguc-Kunt, Levine (2000) - Financial Structures Database
e   Bankscope database.
f   Barth, Caprio, and Levine (2001
g   Heritage Foundation
h   Kaufman, Kraay and Zoido-Lobaton(1999)
i   La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999)
j   Easterly and Levine (1997)