

Supervisory Effectiveness and Bank Risk

Supplement

This supplement includes:

1. A table of empirical results with all regressions not included in the paper to save space
2. A tables reporting the average number of audits and sanctions by country and year.

1. Discussion of *Table SI*.

The table presents additional regressions that are mentioned in the manuscript, but not reported to save space. In particular,

- Equation 1 presents the results from re-estimating equation 4 of Table 4, including the second lags of the regulatory variables instead of the first lags (see the relevant discussion in the first paragraph of Section 4.1 and the last paragraph of Section 4.3).
- Equation 2 presents the results obtained from using the legal origin dummy as instrument (see last paragraph of Section 4.1).
- Equation 3 presents the results obtained from using changes in the regulatory variables (capital stringency, market discipline and activity restrictions) as instruments (see last paragraph of Section 4.1).
- Equation 4 includes the cubic term of audits among the regressors (see discussion in the second paragraph of Section 4.2).
- In equation 5 we drop 10% of the outliers (in terms of standard error) of audits (see discussion in the second paragraph of Section 4.2).
- Equation 6 includes the squared term of sanctions among the regressors (see discussion in the second paragraph of Section 4.2).

- Equation 7 includes the interaction term of activity restrictions with economic freedom (see discussion in footnote 12 of the main text).
- Equation 8 includes only the banks falling into the top 25% in terms of assets market share (see discussion the first paragraph of Section 4.3).

Table SI. Additional analysis on the relationship between on-site audits and sanctions and bank risk

The table presents estimation results (coefficients and t-statistics in parentheses) on the relationship between bank risk and on-site audits and sanctions. Dependent variable is the Z-index. Estimation method is dynamic panel GMM. The table also reports p-values of the Wald test for the joint significance of the coefficients, the tests for first (AR1) and second (AR2) order autocorrelation and the Sargan test for overidentifying restrictions. *, ** and *** denote significance at the 10, 5 and 1 per cent, respectively. The variables are defined in the Appendix of the manuscript. Δ in front of NPL and RA (dependent variables in regressions 4 and 5, respectively) reflects change over the previous period and all explanatory variables in these specifications are also taken as changes.

Equation	1	2	3	4	5	6	7	8
Specification	Second lags of regulatory variables	Legal origin as instrument	Changes in regulatory variables as instruments	Cubic term of audits	Dropping outliers of audits	Squared term of sanctions	Interaction of activity restrictions and economic freedom	Banks with high market share
lagged dependent	0.381*** (8.25)	0.317*** (4.88)	0.355*** (7.24)	0.380*** (8.22)	0.343*** (5.15)	0.385*** (8.41)	0.377*** (8.14)	0.272*** (4.22)
audits	-0.363** (-2.28)	-0.345** (-2.04)	-0.361** (-2.20)	-0.348** (-2.06)	-0.381** (-2.45)	-0.368** (-2.31)	-0.361** (-2.27)	-0.324* (-1.85)
sanctions	1.867*** (2.85)	1.802*** (2.73)	1.888*** (3.27)	1.867*** (2.85)	1.855*** (2.81)	1.814*** (2.72)	1.860*** (2.84)	1.428** (2.19)
audits squared	0.090** (2.39)	0.085** (2.18)	0.088** (2.24)	0.085** (2.17)	0.080** (1.99)	0.085** (2.22)	0.091** (2.39)	0.088** (2.20)
sanctions squared						0.023 (0.49)		
audits cubic				0.000 (0.18)				
liquidity	-0.068** (-2.32)	-0.061** (-2.10)	-0.070** (-2.42)	-0.067** (-2.30)	-0.073** (-2.38)	-0.066** (-2.30)	-0.069** (-2.34)	-0.057** (-2.08)
bank size	0.116*** (3.12)	0.131*** (3.40)	0.088*** (2.94)	0.114*** (3.11)	0.106*** (3.03)	0.111*** (3.07)	0.115*** (3.12)	
provisions	-0.060 (-1.50)	-0.047 (-1.16)	-0.038 (-1.10)	-0.061 (-1.51)	-0.058 (-1.47)	-0.051 (-1.22)	-0.050 (-1.20)	-0.043 (-1.04)
revenue growth	0.041** (2.30)	0.033* (1.76)	0.033** (2.10)	0.040** (2.28)	0.043** (2.34)	0.042** (2.32)	0.037** (2.20)	0.059** (2.50)
concentration	-0.520 (-1.14)	0.012 (0.06)	-0.383 (-0.68)	-0.533 (-1.17)	-0.499 (-1.06)	-0.382 (-0.88)	-0.454 (-0.98)	0.005 (0.00)

Table SI. (Continued)

economic freedom	0.053** (2.26)	0.047** (2.12)	0.052** (2.24)	0.055** (2.27)	0.054** (2.28)	0.053** (2.26)	0.048** (2.15)	0.070** (2.47)
gdp per capita	3.002*** (3.07)	2.974*** (2.81)	2.974*** (2.82)	3.018*** (3.10)	3.007*** (3.09)	2.998*** (2.98)	3.022*** (3.12)	2.681** (2.55)
inflation	-0.048** (-2.15)	-0.041* (-1.91)	-0.048** (-2.09)	-0.050** (-2.17)	-0.047** (-2.13)	-0.049** (-2.17)	-0.050** (-2.20)	-0.017 (-1.01)
capital stringency	0.205 (0.80)	0.208 (0.82)	0.211 (0.85)	0.188 (0.75)	0.233 (0.94)	0.240 (0.99)	0.211 (0.86)	0.317 (1.21)
market discipline	0.516** (2.12)	0.500** (2.06)	0.411* (1.84)	0.504** (2.07)	0.420* (1.85)	0.455* (1.93)	0.500** (2.06)	0.457* (1.93)
activity restrictions	0.909*** (3.59)	0.812*** (3.33)	0.838*** (3.42)	0.895*** (3.54)	0.901*** (3.58)	0.910*** (3.59)	0.813*** (3.30)	0.790*** (2.84)
economic freedom* activity restrictions							0.005 (1.33)	
No. of observations	27,012	30,113	30,113	30,113	27,102	30,113	30,113	8,528
Wald-test	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
AR1	0.092	0.049	0.075	0.101	0.097	0.112	0.092	0.188
AR2	0.025	0.045	0.026	0.028	0.026	0.030	0.012	0.041
Sargan	0.183	0.088	0.411	0.190	0.201	0.220	0.137	0.484

2. Dataset on audits and sanctions

Table SII reports the average number of audits and sanctions by country and year. Panel A reports the average number of audits and sanctions by country and Panel B the average number of audits and sanctions by year. Note that for the years 1995-1998 we only have data for US banks, so the average numbers in Panel B for these years are a lot higher.

Table SII. Per country and year averages of audits and sanctions

Panel A: Average number of audits and sanctions by country		
country	audits	sanctions
Australia	227.43	16.20
Bulgaria	23.09	48.82
Czech Republic	11.82	13.10
Germany	381.27	51.18
Greece	219.50	26.00
Hong Kong	247.18	4.82
Korea	570.88	240.75
Latvia	32.13	6.02
Luxembourg	47.50	468.02
Portugal	18.18	9.00
Romania	52.90	79.60
Russia	2761.73	3315.09
Serbia	24.71	26.12
Spain	561.60	17.20
Turkey	304.43	92.71
Ukraine	632.38	185.88
USA	9496.50	349.00
Total	1208.20	335.26

Panel B: Average number of audits and sanctions by year		
year	audits	sanctions
1995	12587.00	363.00
1996	10844.00	246.00
1997	9784.00	227.00
1998	1748.38	541.57
1999	1432.91	183.36
2000	1220.55	443.45
2001	1050.43	404.08
2002	1114.53	387.79
2003	903.00	381.81
2004	920.47	276.41
2005	837.00	290.13
2006	855.00	297.25
2007	828.56	303.69
2008	868.53	313.13
Total	1208.20	335.26