

# China's Corporate Social Credit System: The Dawn of Surveillance State Capitalism?

## Online Supplementary Material

October 2022

Table A: OLS Regression on the Determinants of Corporate Social Credit Scores (Log of Scores)

	(1)	(2)	(3)	(4)	(5)
% Independent Director	0.069 (0.066)				0.070 (0.059)
Leverage		-0.068** (0.028)			-0.067** (0.028)
ROA		0.015 (0.043)			0.013 (0.042)
SOE			0.016* (0.009)		0.014 (0.009)
% State Shareholding			0.057 (0.052)		0.072 (0.058)
Party-Building Reform			-0.009 (0.009)		-0.010 (0.009)
Political Connection				0.012* (0.006)	0.013** (0.006)
Firm Size	0.011*** (0.003)	0.013*** (0.003)	0.010*** (0.002)	0.010*** (0.003)	0.012*** (0.003)
Firm Age	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	0.000 (0.001)
Book-to-Market	-0.019 (0.014)	-0.018 (0.014)	-0.020 (0.014)	-0.020 (0.014)	-0.020 (0.014)
Constant	6.414*** (0.085)	6.450*** (0.064)	6.449*** (0.066)	6.453*** (0.066)	6.421*** (0.079)
Observations	414	414	414	414	414
$R^2$	0.111	0.160	0.116	0.116	0.179
Adjusted $R^2$	0.051	0.101	0.052	0.057	0.110

Robust standard errors in parentheses. All models include industry and city fixed effect.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table B: Correlation Table

	Social Credit Scores	% Indepe ndent Director	Leverage	ROA	Party- Building Reform	SOE	% State Sharehold ing	Political Connectio n	Firm Size	Firm Age	Book-to- Market
Social Credit Scores	1										
% Independent Director	0.0364	1									
Leverage	-0.2160***	-0.0565	1								
ROA	0.1600**	0.0504	-0.4310***	1							
Party-Building Reform	-0.0230	-0.0572	0.0052	0.0224	1						
SOE	0.0018	-0.1090*	0.0309	-0.0160	0.3850***	1					
% State Shareholding	-0.0018	0.0231	0.0747	-0.0013	0.1440**	0.3050***	1				
Political Connection	0.1000*	-0.0636	0.0335	0.0274	0.1010*	0.0449	-0.0346	1			
Firm Size	0.0954	-0.0821	0.2930***	0.1640***	0.1260*	0.2280***	0.1610***	0.1280**	1		
Firm Age	0.0019	-0.0835	-0.0176	0.0285	0.1270**	0.1880***	-0.0239	0.0142	0.1300**	1	
Book-to-Market	-0.0616	-0.0681	0.1820***	0.0039	0.0849	0.2650***	0.1270**	0.0831	0.4520***	0.2330***	1

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table C: Testing Multicollinearity

	(1) Social Credit Scores	vif
% Independent Director	33.29	1.03
Leverage	-59.34***	1.49
ROA	4.793	1.40
Party-Building Reform	-5.879	1.19
SOE	1.312	1.39
% State Shareholding	5.716	1.14
Political Connection	9.662*	1.03
Firm Size	8.434***	1.56
Firm Age	0.0304	1.10
Book-to-Market	-22.67*	1.36
Constant	697.0***	
Observations	414	

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table D: OLS Regression on the Effect of Political Connection on Corporate Social Credit Scores

	(1)	(2)	(3)	(4)	(5)	(6)
Political Connection	9.625**			10.515**		
	(4.799)			(4.831)		
Director PC Dummy		9.740**			10.806**	
		(4.770)			(4.824)	
% Director PC			36.382*			36.406*
			(19.525)			(19.751)
% Independent Director				54.039	54.422	46.328
				(46.495)	(46.497)	(46.609)
Leverage				-50.785**	-51.023**	-51.025**
				(20.922)	(20.940)	(21.199)
ROA				8.845	8.765	8.374
				(30.920)	(30.885)	(31.232)
Party-Building Reform				-7.621	-7.678	-6.918
				(7.125)	(7.124)	(7.130)
SOE				11.011	10.980	10.430
				(7.217)	(7.213)	(7.240)
% State Shareholding				56.309	56.797	53.230
				(48.146)	(48.185)	(48.574)
Firm Size	8.353***	8.348***	8.340***	9.928***	9.929***	9.940***
	(2.046)	(2.047)	(2.030)	(2.540)	(2.539)	(2.539)
Firm Age	0.447	0.456	0.464	0.235	0.245	0.245
	(0.466)	(0.467)	(0.468)	(0.433)	(0.433)	(0.438)
Book-to-Market	-16.039	-16.265	-15.582	-16.462	-16.721	-15.893
	(11.144)	(11.145)	(11.152)	(10.958)	(10.955)	(11.014)
Constant	609.336***	609.405***	610.077***	584.304***	584.160***	588.377***
	(52.484)	(52.482)	(52.111)	(63.327)	(63.329)	(63.188)
Observations	414	414	414	414	414	414
$R^2$	0.123	0.124	0.121	0.178	0.179	0.174
Adjusted $R^2$	0.064	0.065	0.061	0.109	0.110	0.105

Robust standard errors in parentheses. All models include industry and city fixed effect.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table E: Tobit Regression on the Determinants of Corporate Social Credit Scores

	(1)	(2)	(3)	(4)	(5)
% Independent Director	57.151 (52.004)				58.550 (47.095)
Leverage		-52.198** (21.063)			-52.153** (20.778)
ROA		7.593 (32.803)			5.391 (31.559)
Party-Building Reform			-5.991 (7.763)		-7.143 (7.527)
SOE			11.113 (7.614)		9.426 (7.245)
% State Shareholding			45.063 (43.478)		59.161 (47.957)
Political Connection				11.102** (5.049)	12.179** (5.058)
Firm Size	9.898*** (2.183)	10.846*** (2.530)	9.423*** (2.107)	9.269*** (2.134)	10.495*** (2.566)
Firm Age	0.610 (0.514)	0.327 (0.454)	0.547 (0.515)	0.581 (0.506)	0.381 (0.461)
Book-to-Market Ratio	-16.506 (11.337)	-14.804 (11.479)	-17.451 (11.386)	-17.400 (11.370)	-16.945 (11.347)
Constant	551.940*** (67.788)	591.046*** (54.134)	581.168*** (54.986)	584.569*** (54.709)	566.072*** (64.271)
/					
var(e.score2)	2427.683*** (374.087)	2321.335*** (306.213)	2416.808*** (374.917)	2410.631*** (372.660)	2268.307*** (296.214)
Observations	414	414	414	414	414
Pseudo $R^2$	0.013	0.017	0.013	0.013	0.019

Robust standard errors in parentheses. All models include industry and city fixed effect.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table F: Fractional Response Logit Regression on the Determinants of Corporate Social Credit Scores

	(1) Coefficien t	(2) Marginal Effects	(3) Coefficien t	(4) Marginal Effects	(5) Coefficien t	(6) Marginal Effects	(7) Coefficien t	(8) Marginal Effects	(9) Coefficien t	(10) Marginal Effects
% Independent Director	0.446	0.053							0.460	0.054
	(0.419)	(0.050)							(0.372)	(0.044)
Leverage			-0.414***	-0.049**					-0.412***	-0.048***
			(0.160)	(0.019)					(0.156)	(0.019)
ROA			0.011	0.001					-0.004	-0.000
			(0.232)	(0.027)					(0.222)	(0.026)
Party-Building Reform					-0.058	-0.007			-0.067	-0.008
					(0.060)	(0.007)			(0.059)	(0.007)
SOE					0.107*	0.013*			0.096	0.011
					(0.062)	(0.007)			(0.059)	(0.007)
% State Shareholding					0.311	0.037			0.420	0.049
					(0.313)	(0.037)			(0.344)	(0.041)
Political Connection							0.081**	0.010**	0.091**	0.011**
							(0.039)	(0.005)	(0.039)	(0.005)
Firm Size	0.078***	0.009***	0.086***	0.010***	0.074***	0.009***	0.073***	0.009***	0.083***	0.010***
	(0.017)	(0.002)	(0.020)	(0.002)	(0.017)	(0.002)	(0.017)	(0.002)	(0.020)	(0.002)
Firm Age	0.004	0.000	0.002	0.000	0.004	0.000	0.004	0.000	0.002	0.000
	(0.004)	(0.000)	(0.003)	(0.000)	(0.004)	(0.000)	(0.004)	(0.000)	(0.004)	(0.000)
Book-to-Market Ratio	-0.148	-0.018	-0.143	-0.017	-0.156*	-0.018*	-0.151*	-0.018*	-0.160*	-0.019*
	(0.091)	(0.011)	(0.093)	(0.011)	(0.092)	(0.011)	(0.091)	(0.011)	(0.091)	(0.011)
Constant	-0.533		-0.221		-0.303		-0.281		-0.408	
	(0.515)		(0.409)		(0.411)		(0.410)		(0.484)	
Observations	414	414	414	414	414	414	414	414	414	414
Pseudo R <sup>2</sup>	0.003		0.004		0.003		0.003		0.004	

Robust standard errors in parentheses. All models include industry and city fixed effect.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$