BANK COMPETITION AND STABILITY: Cross-Country Heterogeneity

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Outline

Overall

The paper deals with the relationship between bank competition and stability

Description (3 issues)

Relationship:

"What is the relationship between bank competition and stability?"

Explain by Model I & II

Fail Banks & Crisis:

"Whether Fail Banks and Bank Crisis impact the relationship "

Explain by Model III

Too Big Too Fail:

"Whether the effect of Too Big Too Fail impact the relationship"

Explain by Model IV

BANK COMPETITION AND STABILITY

Competition-Fragility VS Competition-Stability View

Competition –Fragility View

Shift risks to depositors

More competitive environment → *More pressure on profits* → *Higher incentive by banks to take more risk* → ***Higher fragility***

Competition –Stability View

Banks face lower credit risk

More competitive environment → *Lower lending rates* → *Reduce cost of borrowing* → *Increase success rate of investment* → ***More Stability***

Cross-Country Setup: Competition-Stability relationship

Sample: banks from 79 countries
(a mix of developed and developing countries)
= 17,055 banks

Conditions:

- *Ranging between 1994-2009*
- *Exclude countries which have data less than 50 years*
- *Limit to commercial, saving, and cooperative banks*

Regression Equation

$$Risk_{i,j,t} = c + (\beta_0 + \beta_1 Z_{j,t}) * Competition_{i,j,t-1} + \gamma X_{i,j,t-1} + \nu_{j,t} + \varepsilon_{i,j,t}$$

Where	*i, j, t*	*stand respectively for bank, country and time*
	Z	*stands for country-specific characters*
	X	*stands for vector of bank-specific variables*
	v	*stands for country-time fixed effects*
	ε	*stands for error terms*

Indicators of market power and bank soundness

Lerner Index: measure pricing power

$$Lerner_{i,t} = \frac{P_{i,t} - MC_{i,t}}{P_{i,t}}$$

Where *P is ratio of total operating income to total assets*

MC is marginal cost

Z-score: measure of bank soundness

$$Z_{i,t} = \frac{ROA_{i,t} + (E/A)_{i,t}}{\sigma(ROA)_{i,t}}$$

Where *ROA is return on assets*

E/A is equity to asset ratio

$\sigma(ROA)$ *is S.D. of ROA*

$$Risk_{i,j,t} = c + (\beta_0 + \beta_1 Z_{j,t}) * Competition_{i,j,t-1} + \gamma X_{i,j,t-1} + \nu_{j,t} + \varepsilon_{i,j,t}$$

As competition
(independent variable)

As risk
(dependent variable)

MODEL I: THE MARKET POWER-BANK SOUNDNESS RELATIONSHIP

Homogeneous relationship between competition and stability

VARIABLES	ln(Z-score)	-ln(sd(ROA))	Eq / TA	ln(Z-score5)	ln(Z-score)	ln(Z-score)	ln(Z-score)	ln(Z-score)	ln(Z-score)
Lerner	1.946***	0.841***	7.443***	1.845***	1.814***		1.987***	1.988***	2.324***
	(0.105)	(0.117)	(0.487)	(0.114)	(0.0862)		(0.109)	(0.109)	(0.139)
Share of Wholesale Funding	0.0912	0.0242	1.926***	0.0677	-0.0200	0.0899	0.143	0.143	0.0794
	(0.138)	(0.144)	(0.452)	(0.126)	(0.0837)	(0.129)	(0.115)	(0.115)	(0.144)
Loans to Total Assets	-0.0566	0.171**	-4.664***	-0.0982	-0.116	0.0824	-0.0336	-0.0348	-0.147*
	(0.0715)	(0.0788)	(0.345)	(0.0843)	(0.0720)	(0.0723)	(0.0722)	(0.0721)	(0.0782)
Non-Interest Revenue Share	-1.061***	-1.406***	3.247***	-1.082***	-0.608***	-0.855***	-1.020***	-1.020***	-1.163***
	(0.0844)	(0.115)	(0.480)	(0.0870)	(0.0654)	(0.0695)	(0.0800)	(0.0800)	(0.0859)
ln(Total Assets)	0.0265***	0.137***	-1.304***	0.0249***	0.00452	0.0255***			0.0185*
	(0.00947)	(0.0115)	(0.0703)	(0.00909)	(0.0179)	(0.00907)			(0.0101)
Loan Loss Provisions to Interest Income	-0.555***	-0.727***	1.822***	-0.423***	-0.203***	-0.820***	-0.532***	-0.532***	
	(0.0737)	(0.0738)	(0.219)	(0.0805)	(0.0410)	(0.108)	(0.0735)	(0.0734)	
Annual Growth in Total Assets	-0.472***	-0.402***	-1.035***	-0.378***	-0.198***	-0.585***	-0.465***	-0.465***	
	(0.0436)	(0.0569)	(0.269)	(0.0451)	(0.0198)	(0.0534)	(0.0425)	(0.0425)	
Constant	3.875***	1.092***	19.09***	3.572***		4.296***	4.017***	4.018***	3.817***
	(0.0885)	(0.114)	(0.594)	(0.0979)		(0.0911)	(0.0610)	(0.0610)	(0.0898)
Average Price of bank activities						7.846***			
						(0.862)			
Marginal Cost						-12.58***			
						(1.083)			
Market Share of Loans							-0.176		
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Market Share of Total Assets								-0.221	
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Observations	80822	80822	80822	59484	76,592	80822	80822	80822	80822
R-squared	0.336	0.452	0.437	0.375	0.052	0.322	0.335	0.335	0.326
Type dummies	YES	YES	YES	YES		YES	YES	YES	YES
Time x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank FE	NO	NO	NO	NO	YES	NO	NO	NO	NO
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Observations	80822	80822	80822	59484	76,592	80822	80822	80822	80822
R-squared	0.336	0.452	0.437	0.375	0.052	0.322	0.335	0.335	0.326
Type dummies	YES	YES	YES	YES		YES	YES	YES	YES
Time x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank FE	NO	NO	NO	NO	YES	NO	NO	NO	NO
Number of Countries	79	79	79	79	79	79	79	79	79

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Homogeneous relationship between competition and stability

VARIABLES	ln(Z-score)	-ln(sd(ROA))	Eq / TA	ln(Z-score5)	ln(Z-score)	ln(Z-score)	ln(Z-score)	ln(Z-score)	ln(Z-score)
Lerner	1.946***	0.841***	7.443***	1.845***	1.814***		1.987***	1.988***	2.324***
	(0.105)	(0.117)	(0.487)	(0.114)	(0.0862)		(0.109)	(0.109)	(0.139)
Share of Wholesale Funding	0.0912	0.0242	1.926***	0.0677	-0.0200	0.0899	0.143	0.143	0.0794
	(0.138)	(0.144)	(0.452)	(0.126)	(0.0837)	(0.129)	(0.115)	(0.115)	(0.144)
Loans to Total Assets	-0.0566	0.171**	-4.664***	-0.0982	-0.116	0.0824	-0.0336	-0.0348	-0.147*
	(0.0715)	(0.0788)	(0.345)	(0.0843)	(0.0720)	(0.0723)	(0.0722)	(0.0721)	(0.0782)
Non-Interest Revenue Share	-1.061***	-1.406***	3.247***	-1.082***	-0.608***	-0.855***	-1.020***	-1.020***	-1.163***
	(0.0844)	(0.115)	(0.480)	(0.0870)	(0.0654)	(0.0695)	(0.0800)	(0.0800)	(0.0859)
ln(Total Assets)	0.0265***	0.137***	-1.304***	0.0249***	0.00452	0.0255***			0.0185*
	(0.00947)	(0.0115)	(0.0703)	(0.00909)	(0.0179)	(0.00907)			(0.0101)
Loan Loss Provisions to Interest Income	-0.555***	-0.727***	1.822***	-0.423***	-0.203***	-0.820***	-0.532***	-0.532***	
	(0.0737)	(0.0738)	(0.219)	(0.0805)	(0.0410)	(0.108)	(0.0735)	(0.0734)	
Annual Growth in Total Assets	-0.472***	-0.402***	-1.035***	-0.378***	-0.198***	-0.585***	-0.465***	-0.465***	
	(0.0436)	(0.0569)	(0.269)	(0.0451)	(0.0198)	(0.0534)	(0.0425)	(0.0425)	
Constant	3.875***	1.092***	19.09***	3.572***		4.296***	4.017***	4.018***	3.817***
	(0.0885)	(0.114)	(0.594)	(0.0979)		(0.0911)	(0.0610)	(0.0610)	(0.0898)
Average Price of bank activities						7.846***			
						(0.862)			
Marginal Cost						-12.58***			
						(1.083)			
Market Share of Loans							-0.176		
							(0.228)		
Market Share of Total Assets								-0.221	
								(0.233)	
Observations	80822	80822	80822	59484	76,592	80822	80822	80822	80822
R-squared	0.336	0.452	0.437	0.375	0.052	0.322	0.335	0.335	0.326
Type dummies	YES	YES	YES	YES		YES	YES	YES	YES
Time x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank FE	NO	NO	NO	NO	YES	NO	NO	NO	NO
Number of Countries	79	79	79	79	79	79	79	79	79

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Homogeneous relationship between competition and stability

VARIABLES	ln(Z-score)	-ln(sd(ROA))	Eq / TA	ln(Z-score5)	ln(Z-score)	ln(Z-score)	ln(Z-score)	ln(Z-score)	ln(Z-score)
Lerner	1.946***	0.841***	7.443***	1.845***	1.814***		1.987***	1.988***	2.324***
	(0.105)	(0.117)	(0.487)	(0.114)	(0.0862)		(0.109)	(0.109)	(0.139)
Share of Wholesale Funding	0.0912	0.0242	1.926***	0.0677	-0.0200	0.0899	0.143	0.143	0.0794
	(0.138)	(0.144)	(0.452)	(0.126)	(0.0837)	(0.129)	(0.115)	(0.115)	(0.144)
Loans to Total Assets	-0.0566	0.171**	-4.664***	-0.0982	-0.116	0.0824	-0.0336	-0.0348	-0.147*
	(0.0715)	(0.0788)	(0.345)	(0.0843)	(0.0720)	(0.0723)	(0.0722)	(0.0721)	(0.0782)
Non-Interest Revenue Share	-1.061***	-1.406***	3.247***	-1.082***	-0.608***	-0.855***	-1.020***	-1.020***	-1.163***
	(0.0844)	(0.115)	(0.480)	(0.0870)	(0.0654)	(0.0695)	(0.0800)	(0.0800)	(0.0859)
ln(Total Assets)	0.0265***	0.137***	-1.304***	0.0249***	0.00452	0.0255***			0.0185*
	(0.00947)	(0.0115)	(0.0703)	(0.00909)	(0.0179)	(0.00907)			(0.0101)
Loan Loss Provisions to Interest Income	-0.555***	-0.727***	1.822***	-0.423***	-0.203***	-0.820***	-0.532***	-0.532***	
	(0.0737)	(0.0738)	(0.219)	(0.0805)	(0.0410)	(0.108)	(0.0735)	(0.0734)	
Annual Growth in Total Assets	-0.472***	-0.402***	-1.035***	-0.378***	-0.198***	-0.585***	-0.465***	-0.465***	
	(0.0436)	(0.0569)	(0.269)	(0.0451)	(0.0198)	(0.0534)	(0.0425)	(0.0425)	
Constant	3.875***	1.092***	19.09***	3.572***		4.296***	4.017***	4.018***	3.817***
	(0.0885)	(0.114)	(0.594)	(0.0979)		(0.0911)	(0.0610)	(0.0610)	(0.0898)
Average Price of bank activities						7.846***			
						(0.862)			
Marginal Cost						-12.58***			
						(1.083)			
Market Share of Loans							-0.176		
							(0.228)		
Market Share of Total Assets								-0.221	
								(0.233)	
Observations	80822	80822	80822	59484	76,592	80822	80822	80822	80822
R-squared	0.336	0.452	0.437	0.375	0.052	0.322	0.335	0.335	0.326
Type dummies	YES	YES	YES	YES		YES	YES	YES	YES
Time x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank FE	NO	NO	NO	NO	YES	NO	NO	NO	NO
Number of Countries	79	79	79	79	79	79	79	79	79

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

MODEL II: DETERMINANTS OF HETEROGENEITY IN THE COMPETITION-STABILITY RELATIONSHIP

Another model supports positive relationship between market power and soundness

VARIABLES	lnZscore3	lnZscore3	lnZscore3	lnZscore3	lnZscore3	lnZscore3	lnZscore3	lnZscore3	lnZscore3	lnZscore3	-ln(sd(ROA))
Lerner index	1.654***	1.631***	1.924***	1.650***	1.853***	1.946***	1.993***	1.904***	1.834***	1.384***	0.199*
	(0.103)	(0.119)	(0.102)	(0.0980)	(0.123)	(0.108)	(0.0864)	(0.0930)	(0.128)	(0.121)	(0.105)
Depth of Information Sharing	0.598***									0.253*	0.322***
x Lerner	(0.110)									(0.146)	(0.124)
Stock Market Turnover		0.398***								0.167**	0.133*
x Lerner		(0.0671)								(0.0796)	(0.0796)
Capital Stringency			0.128							0.0436	0.0252
x Lerner			(0.105)							(0.0881)	(0.0951)
Deposit Insurance Coverage				0.761***						0.660***	0.644***
x Lerner				(0.0905)						(0.125)	(0.118)
Multiple Supervisors					0.217**					-0.0388	0.103
x Lerner					(0.0936)					(0.0748)	(0.0764)
External Governance Index						0.154				-0.00701	0.0554
x Lerner						(0.150)				(0.126)	(0.121)
Activity Restrictions							0.645***			0.283***	0.426***
x Lerner							(0.105)			(0.101)	(0.103)
Heterogeneous Bank Revenues								-0.487***		-0.0810	0.0928
x Lerner								(0.115)		(0.130)	(0.132)
Systemic Stability									0.298***	0.171**	0.116
x Lerner									(0.102)	(0.0859)	(0.0833)
Constant	3.863***	3.870***	3.892***	3.894***	3.884***	3.891***	3.912***	3.857***	3.886***	3.914***	1.195***
	(0.0915)	(0.0934)	(0.0917)	(0.0895)	(0.0945)	(0.0929)	(0.0969)	(0.0892)	(0.0917)	(0.101)	(0.130)
Observations	79365	80281	77533	80767	77425	77481	76967	80821	79410	75333	75333
R-squared	0.333	0.337	0.325	0.339	0.325	0.324	0.327	0.337	0.331	0.320	0.437
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Type dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of Countries	71	76	72	78	72	72	72	79	79	60	60

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

MODEL III: FAILING BANKS AND BANKING CRISES

Effect of Bank Fail & crises does not directly impact relationship between competition and stability

VARIABLES	Baseline	Distressed Exit	Not Distressed	Crisis Indicator	Pre2007
Lerner index	1.384***	1.214***	1.090***	1.383***	1.477***
	(0.121)	(0.126)	(0.137)	(0.117)	(0.116)
Depth of Information Sharing	0.253*	0.261*	0.313**	0.253*	0.191
x Lerner	(0.146)	(0.143)	(0.159)	(0.146)	(0.136)
Stock Market Turnover	0.167**	0.0906	0.0291	0.166*	0.0440
x Lerner	(0.0796)	(0.0733)	(0.0946)	(0.0919)	(0.103)
Capital Stringency	0.0436	0.0848	0.137	0.0436	0.0713
x Lerner	(0.0881)	(0.0848)	(0.101)	(0.0876)	(0.0817)
Deposit Insurance Coverage	0.660***	0.602***	0.759***	0.659***	0.610***
x Lerner	(0.125)	(0.115)	(0.138)	(0.153)	(0.114)
Multiple Supervisors	-0.0388	-0.0490	-0.0456	-0.0389	-0.0793
x Lerner	(0.0748)	(0.0696)	(0.0833)	(0.0747)	(0.0778)
External Governance Index	-0.00701	-0.0380	-0.0427	-0.00719	-0.163
x Lerner	(0.126)	(0.122)	(0.143)	(0.130)	(0.125)
Activity Restrictions	0.283***	0.236**	0.309***	0.283***	0.293***
x Lerner	(0.101)	(0.0969)	(0.104)	(0.100)	(0.103)
Heterogeneous Bank Revenues	-0.0810	-0.0998	-0.00480	-0.0809	-0.0145
x Lerner	(0.130)	(0.126)	(0.136)	(0.132)	(0.132)
Systemic Stability	0.171**	0.241***	0.234**	0.172	0.313***
x Lerner	(0.0859)	(0.0752)	(0.0954)	(0.120)	(0.0929)
Last Observation Distressed		1.399***			
x Lerner		(0.212)			
Systemic Banking Crisis Dummy				0.00573	
x Lerner				(0.413)	
Constant	3.914***	3.958***	3.990***	3.914***	3.840***
	(0.101)	(0.0979)	(0.0974)	(0.101)	(0.0957)
Observations	75333	75333	73233	75333	61870
R-squared	0.320	0.322	0.285	0.320	0.305
Control Variables	YES	YES	YES	YES	YES
Type dummies	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Effect of Bank Fail & crises does not directly impact relationship between competition and stability

VARIABLES	Baseline	Distressed Exit	Not Distressed	Crisis Indicator	Pre2007
Lerner index	1.384***	1.214***	1.090***	1.383***	1.477***
	(0.121)	(0.126)	(0.137)	(0.117)	(0.116)
Depth of Information Sharing	0.253*	0.261*	0.313**	0.253*	0.191
x Lerner	(0.146)	(0.143)	(0.159)	(0.146)	(0.136)
Stock Market Turnover	0.167**	0.0906	0.0291	0.166*	0.0440
x Lerner	(0.0796)	(0.0733)	(0.0946)	(0.0919)	(0.103)
Capital Stringency	0.0436	0.0848	0.137	0.0436	0.0713
x Lerner	(0.0881)	(0.0848)	(0.101)	(0.0876)	(0.0817)
Deposit Insurance Coverage	0.660***	0.602***	0.759***	0.659***	0.610***
x Lerner	(0.125)	(0.115)	(0.138)	(0.153)	(0.114)
Multiple Supervisors	-0.0388	-0.0490	-0.0456	-0.0389	-0.0793
x Lerner	(0.0748)	(0.0696)	(0.0833)	(0.0747)	(0.0778)
External Governance Index	-0.00701	-0.0380	-0.0427	-0.00719	-0.163
x Lerner	(0.126)	(0.122)	(0.143)	(0.130)	(0.125)
Activity Restrictions	0.283***	0.236**	0.309***	0.283***	0.293***
x Lerner	(0.101)	(0.0969)	(0.104)	(0.100)	(0.103)
Heterogeneous Bank Revenues	-0.0810	-0.0998	-0.00480	-0.0809	-0.0145
x Lerner	(0.130)	(0.126)	(0.136)	(0.132)	(0.132)
Systemic Stability	0.171**	0.241***	0.234**	0.172	0.313***
x Lerner	(0.0859)	(0.0752)	(0.0954)	(0.120)	(0.0929)
Last Observation Distressed		1.399***			
x Lerner		(0.212)			
Systemic Banking Crisis Dummy				0.00573	
x Lerner				(0.413)	
Constant	3.914***	3.958***	3.990***	3.914***	3.840***
	(0.101)	(0.0979)	(0.0974)	(0.101)	(0.0957)
Observations	75333	75333	73233	75333	61870
R-squared	0.320	0.322	0.285	0.320	0.305
Control Variables	YES	YES	YES	YES	YES
Type dummies	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Effect of Bank Fail & crises does not directly impact relationship between competition and stability

VARIABLES	Baseline	Distressed Exit	Not Distressed	Crisis Indicator	Pre2007
Lerner index	1.384***	1.214***	1.090***	1.383***	1.477***
	(0.121)	(0.126)	(0.137)	(0.117)	(0.116)
Depth of Information Sharing	0.253*	0.261*	0.313**	0.253*	0.191
x Lerner	(0.146)	(0.143)	(0.159)	(0.146)	(0.136)
Stock Market Turnover	0.167**	0.0906	0.0291	0.166*	0.0440
x Lerner	(0.0796)	(0.0733)	(0.0946)	(0.0919)	(0.103)
Capital Stringency	0.0436	0.0848	0.137	0.0436	0.0713
x Lerner	(0.0881)	(0.0848)	(0.101)	(0.0876)	(0.0817)
Deposit Insurance Coverage	0.660***	0.602***	0.759***	0.659***	0.610***
x Lerner	(0.125)	(0.115)	(0.138)	(0.153)	(0.114)
Multiple Supervisors	-0.0388	-0.0490	-0.0456	-0.0389	-0.0793
x Lerner	(0.0748)	(0.0696)	(0.0833)	(0.0747)	(0.0778)
External Governance Index	-0.00701	-0.0380	-0.0427	-0.00719	-0.163
x Lerner	(0.126)	(0.122)	(0.143)	(0.130)	(0.125)
Activity Restrictions	0.283***	0.236**	0.309***	0.283***	0.293***
x Lerner	(0.101)	(0.0969)	(0.104)	(0.100)	(0.103)
Heterogeneous Bank Revenues	-0.0810	-0.0998	-0.00480	-0.0809	-0.0145
x Lerner	(0.130)	(0.126)	(0.136)	(0.132)	(0.132)
Systemic Stability	0.171**	0.241***	0.234**	0.172	0.313***
x Lerner	(0.0859)	(0.0752)	(0.0954)	(0.120)	(0.0929)
Last Observation Distressed		1.399***			
x Lerner		(0.212)			
Systemic Banking Crisis Dummy				0.00573	
x Lerner				(0.413)	
Constant	3.914***	3.958***	3.990***	3.914***	3.840***
	(0.101)	(0.0979)	(0.0974)	(0.101)	(0.0957)
Observations	75333	75333	73233	75333	61870
R-squared	0.320	0.322	0.285	0.320	0.305
Control Variables	YES	YES	YES	YES	YES
Type dummies	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

MODEL IV: TOO BIG TOO FAIL AND THE RELATIONSHIP

No direct effect of too big too fail on the relation

VARIABLES	Baseline	Commercial Banks	Lerner	Market Share	Large Market Share	TBTF10	TBTF25	Foreign Banks
Lerner	1.384***	1.429***	1.725***	1.748***	1.730***	1.734***	1.732***	1.604***
	(0.121)	(0.116)	(0.108)	(0.123)	(0.113)	(0.112)	(0.110)	(0.105)
Depth of Information Sharing	0.253*	0.333**	0.147	0.141	0.146	0.145	0.146	0.0808
x Lerner	(0.146)	(0.142)	(0.122)	(0.125)	(0.123)	(0.123)	(0.123)	(0.127)
Stock Market Turnover	0.167**	0.244***	0.137**	0.130*	0.135**	0.134**	0.135**	0.0945
x Lerner	(0.0796)	(0.0725)	(0.0677)	(0.0679)	(0.0677)	(0.0676)	(0.0676)	(0.0715)
Capital Stringency	0.0436	0.0588	0.00250	-0.00243	0.00118	-0.000848	-0.00122	-0.0520
x Lerner	(0.0881)	(0.0888)	(0.0779)	(0.0772)	(0.0775)	(0.0775)	(0.0776)	(0.0801)
Deposit Insurance Coverage	0.660***	0.587***	0.389***	0.388***	0.389***	0.387***	0.385***	0.320***
x Lerner	(0.125)	(0.129)	(0.111)	(0.112)	(0.111)	(0.111)	(0.111)	(0.112)
Multiple Supervisors	-0.0388	-0.0857	0.0235	0.0229	0.0234	0.0231	0.0229	0.0727
x Lerner	(0.0748)	(0.0690)	(0.0664)	(0.0662)	(0.0663)	(0.0663)	(0.0664)	(0.0706)
External Governance Index	-0.00701	-0.00473	-0.0125	-0.00846	-0.0113	-0.00910	-0.00977	0.144
x Lerner	(0.126)	(0.134)	(0.106)	(0.105)	(0.105)	(0.105)	(0.105)	(0.104)
Activity Restrictions	0.283***	0.126	0.249***	0.254***	0.250***	0.250***	0.249***	0.281***
x Lerner	(0.101)	(0.0977)	(0.0880)	(0.0887)	(0.0883)	(0.0882)	(0.0880)	(0.0884)
Heterogeneous Bank Revenues	-0.0810	-0.399***	-0.0712	-0.0719	-0.0716	-0.0713	-0.0699	-0.0162
x Lerner	(0.130)	(0.104)	(0.114)	(0.113)	(0.113)	(0.114)	(0.114)	(0.115)
Systemic Stability	0.171**	0.0834	0.353***	0.348***	0.352***	0.353***	0.354***	0.341***
x Lerner	(0.0859)	(0.0666)	(0.0729)	(0.0732)	(0.0730)	(0.0731)	(0.0730)	(0.0749)
Lerner			-3.082***	-3.077***	-3.081***	-3.080***	-3.081***	-3.030***
x Lerner			(0.314)	(0.315)	(0.314)	(0.314)	(0.314)	(0.310)
Market Share				-1.509				
x Lerner				(1.687)				
Dummy Large Market Share					-0.0918			
x Lerner					(0.191)			
I(Size/GDP > 10%)						-0.191		
x Lerner						(0.223)		
I(Size/GDP > 25%)							-0.355	
x Lerner							(0.285)	
Foreign banks								-0.338***
x Lerner								(0.0920)
Constant	3.914***	4.041***	4.044***	4.038***	4.043***	4.040***	4.041***	4.043***
	(0.101)	(0.0748)	(0.0919)	(0.0953)	(0.0933)	(0.0942)	(0.0933)	(0.0944)
Observations	75333	38134	75333	75333	75333	75333	75333	73669
R-squared	0.320	0.304	0.328	0.328	0.328	0.328	0.328	0.328
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES
Type dummies	YES	NO	YES	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES

No direct effect of too big too fail on the relation

VARIABLES	Baseline	Commercial Banks	Lerner	Market Share	Large Market Share	TBTF10	TBTF25	Foreign Banks
Lerner	1.384***	1.429***	1.725***	1.748***	1.730***	1.734***	1.732***	1.604***
	(0.121)	(0.116)	(0.108)	(0.123)	(0.113)	(0.112)	(0.110)	(0.105)
Depth of Information Sharing	0.253*	0.333**	0.147	0.141	0.146	0.145	0.146	0.0808
x Lerner	(0.146)	(0.142)	(0.122)	(0.125)	(0.123)	(0.123)	(0.123)	(0.127)
Stock Market Turnover	0.167**	0.244***	0.137**	0.130*	0.135**	0.134**	0.135**	0.0945
x Lerner	(0.0796)	(0.0725)	(0.0677)	(0.0679)	(0.0677)	(0.0676)	(0.0676)	(0.0715)
Capital Stringency	0.0436	0.0588	0.00250	-0.00243	0.00118	-0.000848	-0.00122	-0.0520
x Lerner	(0.0881)	(0.0888)	(0.0779)	(0.0772)	(0.0775)	(0.0775)	(0.0776)	(0.0801)
Deposit Insurance Coverage	0.660***	0.587***	0.389***	0.388***	0.389***	0.387***	0.385***	0.320***
x Lerner	(0.125)	(0.129)	(0.111)	(0.112)	(0.111)	(0.111)	(0.111)	(0.112)
Multiple Supervisors	-0.0388	-0.0857	0.0235	0.0229	0.0234	0.0231	0.0229	0.0727
x Lerner	(0.0748)	(0.0690)	(0.0664)	(0.0662)	(0.0663)	(0.0663)	(0.0664)	(0.0706)
External Governance Index	-0.00701	-0.00473	-0.0125	-0.00846	-0.0113	-0.00910	-0.00977	0.144
x Lerner	(0.126)	(0.134)	(0.106)	(0.105)	(0.105)	(0.105)	(0.105)	(0.104)
Activity Restrictions	0.283***	0.126	0.249***	0.254***	0.250***	0.250***	0.249***	0.281***
x Lerner	(0.101)	(0.0977)	(0.0880)	(0.0887)	(0.0883)	(0.0882)	(0.0880)	(0.0884)
Heterogeneous Bank Revenues	-0.0810	-0.399***	-0.0712	-0.0719	-0.0716	-0.0713	-0.0699	-0.0162
x Lerner	(0.130)	(0.104)	(0.114)	(0.113)	(0.113)	(0.114)	(0.114)	(0.115)
Systemic Stability	0.171**	0.0834	0.353***	0.348***	0.352***	0.353***	0.354***	0.341***
x Lerner	(0.0859)	(0.0666)	(0.0729)	(0.0732)	(0.0730)	(0.0731)	(0.0730)	(0.0749)
Lerner			-3.082***	-3.077***	-3.081***	-3.080***	-3.081***	-3.030***
x Lerner			(0.314)	(0.315)	(0.314)	(0.314)	(0.314)	(0.310)
Market Share				-1.509				
x Lerner				(1.687)				
Dummy Large Market Share					-0.0918			
x Lerner					(0.191)			
I(Size/GDP > 10%)						-0.191		
x Lerner						(0.223)		
I(Size/GDP > 25%)							-0.355	
x Lerner							(0.285)	
Foreign banks								-0.338***
x Lerner								(0.0920)
Constant	3.914***	4.041***	4.044***	4.038***	4.043***	4.040***	4.041***	4.043***
	(0.101)	(0.0748)	(0.0919)	(0.0953)	(0.0933)	(0.0942)	(0.0933)	(0.0944)
Observations	75333	38134	75333	75333	75333	75333	75333	73669
R-squared	0.320	0.304	0.328	0.328	0.328	0.328	0.328	0.328
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES
Type dummies	YES	NO	YES	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES

No direct effect of too big too fail on the relation

VARIABLES	Baseline	Commercial Banks	Lerner	Market Share	Large Market Share	TBTF10	TBTF25	Foreign Banks
Lerner	1.384***	1.429***	1.725***	1.748***	1.730***	1.734***	1.732***	1.604***
	(0.121)	(0.116)	(0.108)	(0.123)	(0.113)	(0.112)	(0.110)	(0.105)
Depth of Information Sharing	0.253*	0.333**	0.147	0.141	0.146	0.145	0.146	0.0808
x Lerner	(0.146)	(0.142)	(0.122)	(0.125)	(0.123)	(0.123)	(0.123)	(0.127)
Stock Market Turnover	0.167**	0.244***	0.137**	0.130*	0.135**	0.134**	0.135**	0.0945
x Lerner	(0.0796)	(0.0725)	(0.0677)	(0.0679)	(0.0677)	(0.0676)	(0.0676)	(0.0715)
Capital Stringency	0.0436	0.0588	0.00250	-0.00243	0.00118	-0.000848	-0.00122	-0.0520
x Lerner	(0.0881)	(0.0888)	(0.0779)	(0.0772)	(0.0775)	(0.0775)	(0.0776)	(0.0801)
Deposit Insurance Coverage	0.660***	0.587***	0.389***	0.388***	0.389***	0.387***	0.385***	0.320***
x Lerner	(0.125)	(0.129)	(0.111)	(0.112)	(0.111)	(0.111)	(0.111)	(0.112)
Multiple Supervisors	-0.0388	-0.0857	0.0235	0.0229	0.0234	0.0231	0.0229	0.0727
x Lerner	(0.0748)	(0.0690)	(0.0664)	(0.0662)	(0.0663)	(0.0663)	(0.0664)	(0.0706)
External Governance Index	-0.00701	-0.00473	-0.0125	-0.00846	-0.0113	-0.00910	-0.00977	0.144
x Lerner	(0.126)	(0.134)	(0.106)	(0.105)	(0.105)	(0.105)	(0.105)	(0.104)
Activity Restrictions	0.283***	0.126	0.249***	0.254***	0.250***	0.250***	0.249***	0.281***
x Lerner	(0.101)	(0.0977)	(0.0880)	(0.0887)	(0.0883)	(0.0882)	(0.0880)	(0.0884)
Heterogeneous Bank Revenues	-0.0810	-0.399***	-0.0712	-0.0719	-0.0716	-0.0713	-0.0699	-0.0162
x Lerner	(0.130)	(0.104)	(0.114)	(0.113)	(0.113)	(0.114)	(0.114)	(0.115)
Systemic Stability	0.171**	0.0834	0.353***	0.348***	0.352***	0.353***	0.354***	0.341***
x Lerner	(0.0859)	(0.0666)	(0.0729)	(0.0732)	(0.0730)	(0.0731)	(0.0730)	(0.0749)
Lerner			-3.082***	-3.077***	-3.081***	-3.080***	-3.081***	-3.030***
x Lerner			(0.314)	(0.315)	(0.314)	(0.314)	(0.314)	(0.310)
Market Share				-1.509				
x Lerner				(1.687)				
Dummy Large Market Share					-0.0918			
x Lerner					(0.191)			
I(Size/GDP > 10%)						-0.191		
x Lerner						(0.223)		
I(Size/GDP > 25%)							-0.355	
x Lerner							(0.285)	
Foreign banks								-0.338***
x Lerner								(0.0920)
Constant	3.914***	4.041***	4.044***	4.038***	4.043***	4.040***	4.041***	4.043***
	(0.101)	(0.0748)	(0.0919)	(0.0953)	(0.0933)	(0.0942)	(0.0933)	(0.0944)
Observations	75333	38134	75333	75333	75333	75333	75333	73669
R-squared	0.320	0.304	0.328	0.328	0.328	0.328	0.328	0.328
Control Variables	YES	YES	YES	YES	YES	YES	YES	YES
Type dummies	YES	NO	YES	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES

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	(0.121)	(0.116)	(0.108)	(0.123)	(0.113)	(0.112)	(0.110)	(0.105)
Depth of Information Sharing	0.253*	0.333**	0.147	0.141	0.146	0.145	0.146	0.0808
x Lerner	(0.146)	(0.142)	(0.122)	(0.125)	(0.123)	(0.123)	(0.123)	(0.127)
Stock Market Turnover	0.167**	0.244***	0.137**	0.130*	0.135**	0.134**	0.135**	0.0945
x Lerner	(0.0796)	(0.0725)	(0.0677)	(0.0679)	(0.0677)	(0.0676)	(0.0676)	(0.0715)
Capital Stringency	0.0436	0.0588	0.00250	-0.00243	0.00118	-0.000848	-0.00122	-0.0520
x Lerner	(0.0881)	(0.0888)	(0.0779)	(0.0772)	(0.0775)	(0.0775)	(0.0776)	(0.0801)
Deposit Insurance Coverage	0.660***	0.587***	0.389***	0.388***	0.389***	0.387***	0.385***	0.320***
x Lerner	(0.125)	(0.129)	(0.111)	(0.112)	(0.111)	(0.111)	(0.111)	(0.112)
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Activity Restrictions	0.283***	0.126	0.249***	0.254***	0.250***	0.250***	0.249***	0.281***
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Control Variables	YES	YES	YES	YES	YES	YES	YES	YES
Type dummies	YES	NO	YES	YES	YES	YES	YES	YES
Year x Country dummies	YES	YES	YES	YES	YES	YES	YES	YES

Conclusion

- Based on 4 models, we get the same outcome;
  positive and significant relationship between bank's market power and stability.
- Also, failing banks/ banking crises/ too big too fail do not have direct impact on the relationship (due to insignificant outcome)
- This study supports "**The Competition-Fragility View**"

THANK YOU

APPENDIX

Two main approaches to assessing the relationship between competition and stability

APPROACH	DESCRIPTION
Cross-Country Setup	Average relationship between competition and stability for the set of countries under investigation.
Single-Country Setup	Document a large degree of variation in the Competition-Stability relation

Country-Specific factors: investigate cross-country variation in the competition stability relation

CATEGORY	SUB-CATEGORY
Institutional and Financial Development	• Depth of Information • Stock Market Turnover
Regulatory and Supervisory Framework	• Capital Stringency Index • Deposit Insurance Coverage • Multiple Supervisors • External Government Index
Herding and Market Structure	• Systemic Stability • Activity Restrictions Index • Heterogeneous Bank Revenue