Geopolitical Risk, Cost of Equity and Lending: Evidence from the Ukrainian War

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ECMI / NBS / CEPS / SUERF Research Conference 2025

02/10/2025

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Introduction

- 02/2022 - Escalation of the Russia-Ukraine conflict
- This paper: How does this shock impact banks and their lending behaviour?
- **Contribution** → Estimate the short- and medium-term impact of a geopolitical risk shock on bank lending behaviour and investigate the role of (changes in) banks' cost of equity


FINANCIAL TIMES
This reckless war could ultimately destabilise Russia itself
Putin unleashes Ukraine assault
World leaders unite to condemn Europe's biggest challenge in 80 years
Scores of casualties reported in fierce fighting across the country
Gas prices soar and benchmark Brent crude oil tops $100 threshold
European former leaders walk away from director's seats on Russia boards
World Markets
BOVET 1822

Introduction

Literature

- Geopolitical risk is positively associated with financial instability (Caldara & Iacoviello, 2022) and positively associated with bank risk (e.g. Phan et al., 2022; Shabir et al., 2023; Wang et al., 2023)
- Geopolitical risk is negatively associated with credit supply (e.g. Niepman & Shen, 2025; Nguyen & Thuy, 2023; Chowdhury et al., 2025; Pradhan et al., 2025; De Haas et al., 2025; Paltalidis & Zhang, 2025)
- The escalation of the Russia-Ukraine conflict had a negative impact on stock market valuations, also for banks (e.g. Federle et al., 2024; Martins et al., 2023; Dieckelmann et al., 2025; Dadoukis et al., 2025)
- A higher cost of equity corresponds with tighter credit supply (Kovner & Van Tassel, 2025; Burietz et al., 2023)

Hypotheses and results

Hypotheses:

H1 Following the outbreak of the Ukraine war, the cost of equity of European banks with direct exposure to Russia through their syndicated loan portfolios increases more than that of non-exposed banks.

H2 In the aftermath of the Ukraine war, European banks with direct exposure to Russia through their syndicated loan portfolios reduce new lending more than non-exposed peers.

H3 Capital structure influences banks' post-shock lending behaviour. In particular, a higher cost of equity is associated with a smaller increase - or a larger reduction - in lending supply, while banks with larger capital buffers are less affected by the shock.

Results:

R1 Cost of equity of Russia-exposed banks increases more compared to non-exposed banks following the start of the war.

R2 Exposed banks cut their credit supply after the start of the war.

R3 Capital buffers mitigate the credit rationing effect, whereas we find no evidence of a higher cost of equity resulting in reduced lending.

Cost of equity - data & methodology

Data:

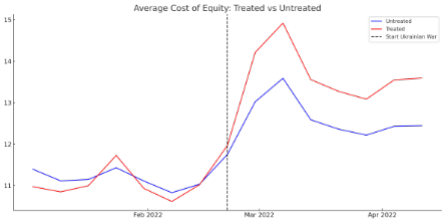
- 68 listed European banks
- LSEG stock market data and I/B/E/S analyst expectations

Methodology: exploit Russia-Ukraine war as quasi-natural experiment in DiD specification

$$COE_{b,t} = \beta_1 \cdot D_b^{treated} \cdot Post_t + \alpha_b + \eta_t + \epsilon_{b,t}$$

- $COE_{b,t}$ estimated by averaging 3 DCF models Appendix
- $Post_t$ based on date of invasion (24 February 2022)
- Treatment vs. control group: whether or not exposed to Russia through syndicated loans ($D_b^{treated}$) $\rightarrow \beta_1 > 0$?
- Matched samples

Cost of equity - results



Dependent variable	Cost of Equity	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.1684**	1.2839**
	(0.4882)	(0.5287)
Fixed effects		
Bank	Yes	Yes
Time	Yes	Yes
Fit statistics		
R^2	0.9801	0.9410
Observations	1,020	360
Specification		
Sample	Full Sample	Matched Sample

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Cost of equity - robustness

Systemic risk analysis: Appendix

- *MES*
- *SRISK*
- $\Delta CoVaR$

Robustness:

- Only euro area banks Appendix
- 6-month window Appendix
- Treatment based on Russia, Belarus, and Ukraine Appendix
- Treatment based on Russia, Belarus, Ukraine, and neighbouring countries Appendix
- Parallel Trends Analysis Appendix

Syndicated lending - data & methodology (1)

Data:

- Syndicated loans (LPC Dealscan):
  - New originations of term loans and credit lines to NFCs; February 2021 to February 2023
- Bank data: banks matched to S&P Capital IQ Pro and Refinitiv

Methodology: exploit Russia-Ukraine war as quasi-natural experiment in DiD specification

$$ln(amount)_{l,b,f,t} = \beta_1 \cdot D_b^{treated} \cdot Post_t + \beta_2 \cdot X_{b,t-1} + \alpha_b + \eta_{i,c,t} + \nu_l + \epsilon_{l,b,f,t}$$

- Treatment vs. control group: whether or not exposed to Russia through syndicated loans ($D_b^{treated}$) $\rightarrow \beta_1 < 0$?
- Fixed effects: bank, industry-country-quarter, loan type, loan currency, loan purpose
- Weighted least squares based on inverse of number of leads

Syndicated lending - data & methodology (2)

Extension 1: impact of cost of equity $\rightarrow \beta_2 < 0$?

$$ln(amount)_{l,b,f,t} = \beta_1 \cdot D_b^{treated} \cdot Post_t + \beta_2 \cdot COE_b \cdot Post_t + \beta_3 \cdot X_{b,t-1} + \alpha_b + \eta_{i,c,t} + \nu_l + \epsilon_{l,b,f,t}$$

Extension 2: sample splits and triple interactions (heterogeneity)

$$ln(amount)_{l,b,f,t} = \beta_1 \cdot D_b^{treated} \cdot Post_t + \beta_2 \cdot COE_b \cdot Post_t + \beta_3 \cdot D_b^{treated} \cdot COE_b \cdot Post_t + \beta_4 \cdot X_{b,t-1} + \alpha_b + \eta_{i,c,t} + \nu_l + \epsilon_{l,b,f,t}$$

Syndicated lending - results (1) - baseline

Dependent variable	Ln of 1 + total loan amount		AISD	
Model	(1)	(2)	(3)	(4)
Explanatory variables				
Treated × Post	-0.1153**	-0.1390***	19.4541*	19.5729
	(0.0523)	(0.0487)	(11.3321)	(12.8054)
Control Variables				
Bank	No	Yes	No	Yes
Fixed effects				
Loan currency	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes
Fit statistics				
R^2	0.7342	0.7350	0.8707	0.8710
Observations	11,018	10,933	1,799	1,786

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Syndicated lending - results (2) - cost of equity

Dependent variable	Ln of 1 + total loan amount					
Model	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables						
Treated × Post	-0.1390***	-0.1187	-0.1511***	-0.0774	-0.1471***	-0.1112**
	(0.0487)	(0.0743)	(0.0531)	(0.0528)	(0.0520)	(0.0511)
Post × MDA Buffer		-0.0942*				
		(0.0464)				
Treated × Post × MDA Buffer		0.0862***				
		(0.0306)				
Post × COE			-0.0176		-0.0204**	
			(0.0162)		(0.0101)	
Treated × Post × COE			-0.0042			
			(0.0182)			
Post × COE 4-week change				-0.1274***		-0.0346
				(0.0448)		(0.0242)
Treated × Post × COE 4-week change				0.1115***		
				(0.0403)		
Control Variables						
Bank	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects						
Loan currency	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
R^2	0.7350	0.7311	0.7351	0.7352	0.7351	0.7351
Observations	10,933	8,333	10,933	10,933	10,933	10,933

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Syndicated lending - results (3) - sample splits

Dependent variable	Ln of 1 + total loan amount			
Model	(1)	(2)	(3)	(4)
Explanatory variables				
Treated × Post	-0.0898	-0.1433**	-0.0824	-0.1529**
	(0.0662)	(0.0686)	(0.0679)	(0.0589)
Fixed effects				
Loan currency	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes
Control Variables				
Bank	Yes	Yes	Yes	Yes
Fit statistics				
R^2	0.8028	0.8460	0.8104	0.7492
Observations	5,266	5,463	3,650	7,177
Specification				
Sample	Term loans	Credit lines	Relationship	No Relationship

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Syndicated lending - robustness

Robustness:

- Only euro area Banks ▸ Appendix
- 12-month window ▸ Appendix
- Treatment based on Russia, Belarus, and Ukraine ▸ Appendix
- Treatment based on Russia, Belarus, Ukraine, and neighbouring countries ▸ Appendix
- Parallel trend analysis ▸ Appendix

Conclusion

1. Cost of equity increases when a geopolitical risk shock takes place
   - Using the Ukrainian War as an exogenous shock to geopolitical risk, we show that banks with lending exposure to the conflict experience an increase in their COE
2. A geopolitical risk shock is associated with decreased credit supply for exposed banks
   - Impact reflects credit rationing, not pricing
   - No evidence of higher cost of equity being associated with a more negative credit supply following a geopolitical risk shock
   - Our analysis suggests general risk aversion

Q&A

Thank you for your attention!

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Appendix - estimation cost of equity

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- Ohlson (2005):

$$P_0 = \frac{EPS_1}{r} \frac{g^S + r \cdot \frac{DPS_1}{EPS_1} - (g^L - 1)}{r - (g^L - 1)}, \tag{1}$$

- Easton (2004):

$$r = \sqrt{\frac{EPS_1}{P_0} \cdot g^S}, \tag{2}$$

- Damodaran (2017):

$$P_0 = \sum_{h=1}^{6} \frac{FCFE_h}{(1+r)^h} + \frac{FCFE_6}{(r - g^L)(1+r)^6}, \tag{3}$$

Appendix - robustness cost of equity (1) - systemic risk

Back

Dependent variable	SRISK		MES		$\Delta CoVaR$	
Model	(1)	(2)	(3)	(4)	(5)	(6)
Explanatory variables						
Treated × Post	10,389.5866**	8,610.6762*	-1.7500**	-2.0466**	0.0007	-0.0001
	(4,129.0521)	(4,375.6373)	(0.7108)	(0.8220)	(0.0012)	(0.0013)
Fixed effects						
Bank	Yes	Yes	Yes	Yes	Yes	Yes
Week	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics						
R^2	0.9876	0.9880	0.8162	0.8113	0.9422	0.9578
Observations	525	270	1,020	360	900	345

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness cost of equity (2) - euro area

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Dependent variable	Cost of Equity	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.4380**	1.6298***
	(0.5353)	(0.5721)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.9833	0.9464
Observations	570	330

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness cost of equity (3) - alt. window

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Dependent variable	Cost of Equity	
Model	(1)	(2)
Explanatory variables		
Treated × Post	-0.3627	-0.1531
	(1.6203)	(0.6781)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.7677	0.8782
Observations	486	270

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness cost of equity (4) - alt. treatment 1

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Dependent variable	Cost of Equity	
Model	(1)	(2)
Explanatory variables		
Treated × Post	1.0193**	1.1333**
	(0.4736)	(0.5203)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.9798	0.9395
Observations	1,020	390

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness cost of equity (5) - alt. treatment 2

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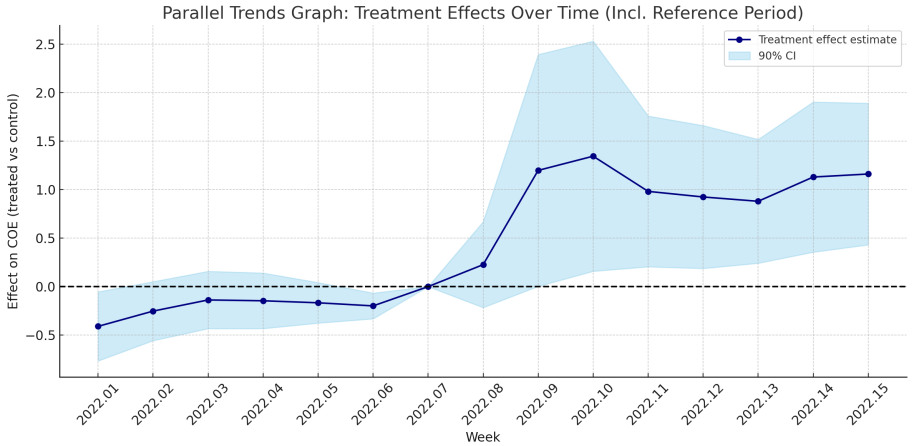
Dependent variable	Cost of Equity	
Model	(1)	(2)
Explanatory variables		
Treated × Post	0.6081*	0.5474
	(0.3279)	(0.3429)
Fixed effects		
Bank	Yes	Yes
Week	Yes	Yes
Fit statistics		
R^2	0.9791	0.9514
Observations	1,020	720

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness cost of equity (6) - Parallel trends analysis

Back



Appendix - robustness syndicated lending (1) - euro area

Back

Dependent variable	Ln of 1 + total loan amount									
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Explanatory variables										
Treated × Post	-0.1612**	-0.1384**	-0.2093***	-0.0756	-0.1732**	-0.1091	-0.0311	-0.3625***	-0.0722	-0.2358**
	(0.0605)	(0.0672)	(0.0699)	(0.0745)	(0.0720)	(0.0651)	(0.0927)	(0.0663)	(0.1073)	(0.0859)
Post × MDA Buffer (demeaned)		-0.0791*								
		(0.0458)								
Treated × Post × MDA Buffer (demeaned)		0.0677**								
		(0.0319)								
Post × COE			0.0018		-0.0247**					
			(0.0176)		(0.0100)					
Treated × Post × COE			-0.0364							
			(0.0221)							
Post × COE 4-week change (demeaned)				-0.0991		-0.0408*				
				(0.0601)		(0.0209)				
Treated × Post × COE 4-week change (demeaned)				0.0697						
				(0.0640)						
Fixed effects										
Loan currency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables										
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics										
R^2	0.7352	0.7353	0.7354	0.7353	0.7354	0.7353	0.7930	0.8605	0.8052	0.7593
Observations	8,330	8,330	8,330	8,330	8,330	8,330	4,263	3,935	2,979	5,239
Specification										
Sample	All	All	All	All	All	All	Term loans	Credit lines	Relationship	No relationship

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness syndicated lending (2) - alt. window

Back

Dependent variable	Ln of 1 + total loan amount									
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Explanatory variables										
Treated × Post	-0.2556***	-0.1927	-0.2588***	-0.1762**	-0.2670***	-0.2286***	-0.1790	-0.2229*	0.0408	-0.3317***
	(0.0807)	(0.1334)	(0.0942)	(0.0739)	(0.0873)	(0.0783)	(0.1197)	(0.1113)	(0.1380)	(0.0918)
Post × MDA Buffer (demeaned)		-0.0773								
		(0.0669)								
Treated × Post × MDA Buffer (demeaned)		0.0930								
		(0.0618)								
Post × COE			-0.0335		-0.0284*					
			(0.0238)		(0.0153)					
Treated × Post × COE			0.0077							
			(0.0258)							
Post × COE 4-week change (demeaned)				-0.1766***		-0.0363				
				(0.0538)		(0.0317)				
Treated × Post × COE 4-week change (demeaned)				0.1677***						
				(0.0526)						
Fixed effects										
Loan currency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables										
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics										
R^2	0.7578	0.7554	0.7580	0.7582	0.7580	0.7579	0.8109	0.8591	0.8152	0.7692
Observations	5,447	4,154	5,447	5,447	5,447	5,447	2,633	2,731	1,892	3,467
Specification										
Sample	All	All	All	All	All	All	Term loans	Credit lines	Relationship	No relationship

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness syndicated lending (3) - alt. treatment 1

Back

Dependent variable	Ln of 1 + total loan amount									
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Explanatory variables										
Treated × Post	-0.1358***	-0.1107	-0.1400***	-0.0642	-0.1381***	-0.1066**	-0.0942	-0.1296*	-0.1005	-0.1834***
	(0.0424)	(0.0717)	(0.0445)	(0.0460)	(0.0455)	(0.0444)	(0.0596)	(0.0647)	(0.0657)	(0.0648)
Post × MDA Buffer (demeaned)		-0.0945*								
		(0.0505)								
Treated × Post × MDA Buffer (demeaned)		0.0858**								
		(0.0372)								
Post × COE			-0.0174		-0.0189*					
			(0.0159)		(0.0102)					
Treated × Post × COE			-0.0021							
			(0.0180)							
Post × COE 4-week change (demeaned)				-0.1320***		-0.0333				
				(0.0472)		(0.0238)				
Treated × Post × COE 4-week change (demeaned)				0.1160***						
				(0.0430)						
Fixed effects										
Loan currency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables										
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics										
R^2	0.7350	0.7311	0.7351	0.7352	0.7351	0.7351	0.8028	0.8459	0.8060	0.7530
Observations	10,933	8,333	10,933	10,933	10,933	10,933	5,266	5,463	3,880	6,878
Specification										
Sample	All	All	All	All	All	All	Term loans	Credit lines	Relationship	No relationship

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness syndicated lending (4) - alt. treatment 2

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Dependent variable	Ln of 1 + total loan amount									
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Explanatory variables										
Treated × Post	-0.0474	0.0274	-0.0530	-0.0105	-0.0658	-0.0279	0.0741	-0.0790	0.0108	-0.0670
	(0.0653)	(0.0802)	(0.0577)	(0.0594)	(0.0602)	(0.0640)	(0.0720)	(0.0960)	(0.0918)	(0.0631)
Post × MDA Buffer (demeaned)		-0.0631								
		(0.0466)								
Treated × Post × MDA Buffer (demeaned)		0.0467								
		(0.0566)								
Post × COE			-0.0308		-0.0198					
			(0.0242)		(0.0120)					
Treated × Post × COE			0.0136							
			(0.0256)							
Post × COE 4-week change (demeaned)				-0.0802		-0.0475**				
				(0.0602)		(0.0220)				
Treated × Post × COE 4-week change (demeaned)				0.0361						
				(0.0605)						
Fixed effects										
Loan currency	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-country-time	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Variables										
Bank	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics										
R^2	0.7348	0.7308	0.7349	0.7350	0.7349	0.7350	0.8028	0.8458	0.8060	0.7527
Observations	10,933	8,333	10,933	10,933	10,933	10,933	5,266	5,463	3,880	6,878
Specification										
Sample	All	All	All	All	All	All	Term loans	Credit lines	Relationship	No relationship

Clustered (Bank) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Appendix - robustness syndicated lending (5) - Parallel trend analysis

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