

Life Below Zero: Bank Lending Under Negative Policy Rates

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Monetary policy in unchartered territory

- To stimulate post-crisis economy, monetary policy has become non-standard
- Some central banks have lowered policy rates to negative
 - ▶ Highly controversial
- **This paper:** transmission of negative policy rates to the economy
 - ▶ If there is transmission via bank lending, is it different?
 - ▶ What are benefits and costs of negative rates?

Our findings and contribution

- ① Transmission of negative rates depends on banks' funding structure – different from other “non-standard” measures
 - ▶ More deposits → lending ↓, risk taking ↑
 - ▶ No such effect for lower but non-negative rates

Our findings and contribution

- 1 Transmission of negative rates depends on banks' funding structure – different from other “non-standard” measures
 - ▶ More deposits → lending ↓, risk taking ↑
 - ▶ No such effect for lower but non-negative rates
- 2 Characterization of bank risk taking and real effects
 - ▶ High-deposit banks lend less, focus on **new** risky borrowers
 - ▶ Safe borrowers switch to low-deposit banks
 - ▶ Relaxation of financial constraints for risky borrowers → investment ↑

● **Negative policy rates**

- ▶ Theory: Rognlie (2016), Brunnermeier & Koby (2017), Eggertsson et al. (2017)
- ▶ Evidence: Basten & Mariathasan (2017) for the case of Switzerland

● **Transmission of positive policy rates via bank lending**

- ▶ Kashyap & Stein (2000), Jiménez et al. (2012), Agarwal et al. (2015), Gomez et al. (2016), Drechsler et al. (2017)

● **Monetary policy and bank risk taking**

- ▶ Jiménez et al. (2014), Angeloni et al. (2015), Ioannidou et al. (2015), Dell'Ariccia et al. (2017), Paligorova & Santos (2017)

● **Non-standard monetary policy**

- ▶ Chodorow-Reich (2014), Ferrando et al. (2015), Acharya et al. (2016), Chakraborty et al. (2016), Crosignani and Carpinelli (2016), Di Maggio et al. (2016), Kandrac and Schlusche (2016)

Hypothesis Development

Conventional view of transmission via banks

- Transmission of monetary policy depends on bank net worth (Bernanke and Gertler 1995, Van den Heuvel 2002, Bernanke 2007)

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- Banks have short-term liabilities

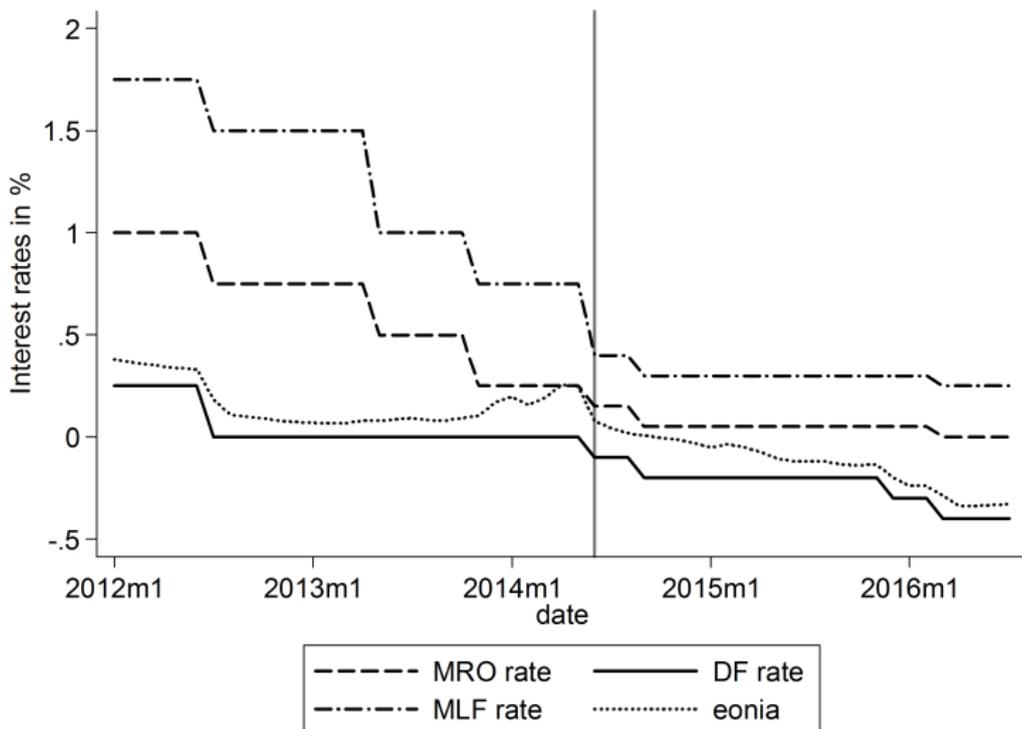
Conventional view of transmission via banks

- Transmission of monetary policy depends on bank net worth (Bernanke and Gertler 1995, Van den Heuvel 2002, Bernanke 2007)
- Banks have long-term assets that require costly screening and monitoring (Holmström and Tirole 1997; Hellmann, Murdock, and Stiglitz 2000)
- Banks have short-term liabilities
- Interest rate ↓
 - ▶ Net worth ↑ → lending ↑ (“bank balance-sheet channel”)
 - ▶ Net worth ↑ → risk taking ↓ (“bank risk-taking channel”)

Role of deposits when rate becomes negative

- ECB sets a negative policy rate on June 5, 2014

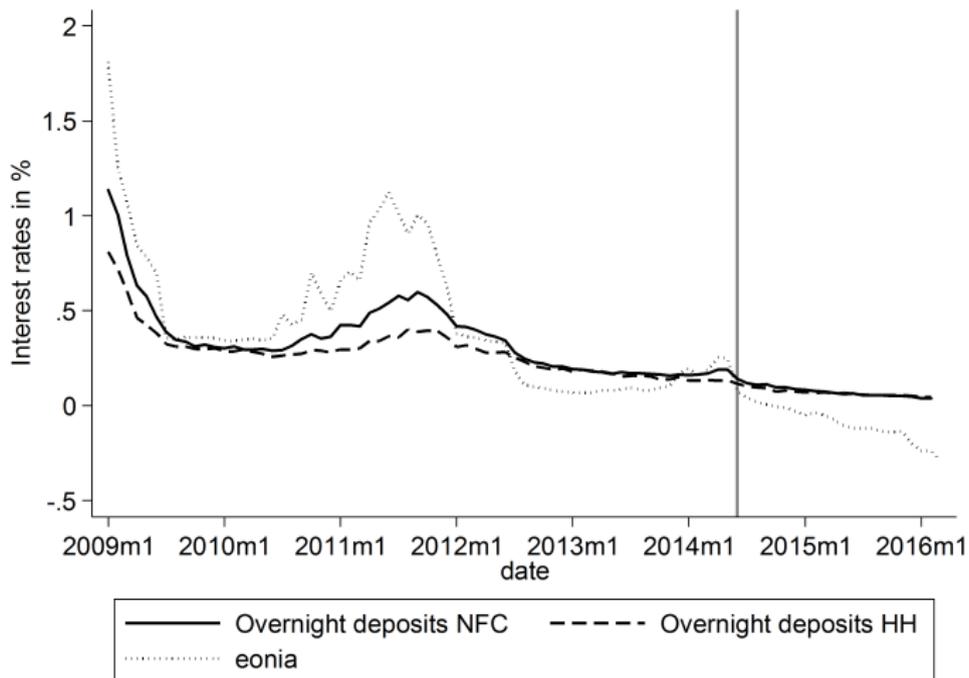
Negative policy rates in the Eurozone



Role of deposits when rate becomes negative

- ECB sets a negative policy rate on June 5, 2014
- No pass-through of negative policy rate to deposit rates

No pass-through of negative policy rate to deposit rates



More

Role of deposits when rate becomes negative

- ECB sets a negative policy rate on June 5, 2014
- No pass-through of negative policy rate to deposit rates
- On deposit funding banks do not benefit from lower cost of short-term debt \Rightarrow deposit funding detrimental to net worth

Our empirical approach

- Compare lending by banks with different extent of deposit funding before and after policy rate becomes negative
 - ▶ Difference-in-differences
- For high-deposit banks relative to low-deposit banks:
 - ▶ Net worth ↓↓ → lending ↓↓, risk taking ↑↑

Data and Identification

Data description

1 Data

- ▶ Syndicated loans: DealScan
- ▶ Both public and private firms in Europe: Amadeus
- ▶ Loans granted by any Eurozone lead arranger(s) (at the bank-group level): SNL
- ▶ January 2013 (2011) to December 2015

2 Baseline measure of bank risk taking

- ▶ Ex-ante volatility of firms with new loans from Eurozone banks

3 Exposure to treatment (negative rate in 06/2014)

- ▶ Deposit-to-asset ratios in 2013 (range from 0.5 to 78%)

Summary statistics

Deposit ratios

Equity ratios

Securities ratios

Fees

Difference-in-differences specification

$$y_{ijt} = \beta_1 \text{Deposit ratio}_j \times \text{After}(06/2014)_t + \beta_2 X_{it} + \delta_t + \eta_j + \epsilon_{ijt},$$

where i = firms, j = banks (lead arrangers), and t = transaction date

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Two identification challenges

- Monetary policy also affects firms' demand for loans

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- Monetary policy also affects firms' demand for loans
- Monetary policy reacts to economic conditions

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How good is the control group?

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Two identification challenges

- Monetary policy also affects firms' demand for loans
- Monetary policy reacts to economic conditions

How good is the control group?

- Placebo around July 2012: lower but still non-negative rate
- Within-firm-year estimation

Baseline Results

ROA volatility of bank-financed firms

Sample	2013 – 2015				$\ln(\sigma(ROA_i)^{5y})$		2011 – 2015	
					2011 – 2015		<u>non-Eurozone borrowers</u>	
							Eurozone lenders	non-Eurozone lenders
Deposit ratio	0.017***	0.016***	0.018***	0.020***	0.020***	0.033**	0.009	
× After(06/2014)	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.014)	(0.020)	
Deposit ratio					-0.007	-0.012	-0.009	
× After(07/2012)					(0.004)	(0.010)	(0.012)	
Bank FE	Y	Y	Y	Y	Y	Y	Y	
Month-year FE	Y	Y	Y	Y	Y	Y	Y	
Country FE	N	Y	N	N	N	N	N	
Industry FE	N	Y	Y	N	N	N	N	
Country-year FE	N	N	Y	Y	Y	Y	Y	
Industry-year FE	N	N	N	Y	Y	Y	Y	
N	1,576	1,576	1,576	1,576	2,490	542	666	

Graph

Could there be something else affecting high-deposit banks in June 2014?

- Households can withdraw deposits more easily than corporations
 \Rightarrow zero lower bound harder for household deposits

Sample Robustness	$\ln(\sigma(ROA_i)^{5y})$ 2013 – 2015	
	Deposit decomposition, any coverage	full coverage
Household deposit ratio \times After(06/2014)	0.027*** (0.007)	0.029*** (0.009)
NFC deposit ratio \times After(06/2014)	0.013 (0.009)	0.010 (0.010)
Bank FE	Y	Y
Month-year FE	Y	Y
Country-year FE	Y	Y
Industry-year FE	Y	Y
N	1,500	763

Robustness

- Adding bank-level controls, alt. definition of exposure [Table](#)
- Former loan spreads as alternative risk measure [Table](#)
- Public firms' stock-return volatility [Table](#)
- Shorter sample ending before March 2015 (ECB's PSPP) [Table](#)
- Inclusion of non-Eurozone lenders facing negative rates [Table](#)

Impact of negative policy rates on total bank lending

- High-deposit banks should lend less

Impact of negative policy rates on total bank lending

- High-deposit banks should lend less

Sample	ln(Total loan volume)		
	2013 – 2015	2013 – 2015	2011 – 2015
Deposit ratio × After(06/2014)	-0.010** (0.004)	-0.009* (0.005)	-0.009** (0.004)
Deposit ratio × After(07/2012)			0.008 (0.006)
Deposit ratio	-0.003 (0.009)		
Bank FE	N	Y	Y
Month-year FE	Y	Y	Y
N	759	759	1,371

Note: regressions run at the bank-month-year level

Graph

Within-firm-year estimation

- Multiple banks per loan, several new loans to same firm
- Examine a bank's loan share in the syndicate
- High-deposit banks should hold smaller shares, confined to safe borrowers

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- Multiple banks per loan, several new loans to same firm
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Sample	Loan share $\in [0, 100]$			
	2013 – 2015	2011 – 2015	Bottom-half ROA volatility	Top-half ROA volatility
Deposit ratio \times After(06/2014)	-0.032* (0.019)	-0.037** (0.016)	-0.150** (0.071)	0.031** (0.011)
Deposit ratio \times After(07/2012)		0.071 (0.052)		
Firm-year FE	Y	Y	Y	Y
Bank-firm FE	Y	Y	Y	Y
Bank-country-year FE	Y	Y	Y	Y
N	1,712	3,045	287	282

Note: regressions run at the loan-bank level

External Validity

Bank net worth: stock returns



Bank net worth and risk taking

	$Stock\ return_j^{1m}$		$\ln(\sigma(return_j)^{1m})$		$CDS\ return_j^{1m}$	
Deposit ratio \times After(06/2014)	-0.076*** (0.0208)	-0.067*** (0.017)	0.012* (0.0065)	0.013** (0.0054)	0.141** (0.062)	0.126** (0.058)
Deposit ratio \times After(07/2012)		0.026 (0.041)		-0.006 (0.016)		-0.043 (0.047)
Bank FE	Y	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y	Y
N	775	1,471	775	1,471	898	1,689

Characterization of Bank Risk Taking and Real Effects

Nature of risk taking

- High-deposit banks add high-risk borrowers: new **and** switching [Table](#)
- Safe borrowers disproportionately switch to low-deposit banks [Figure](#)
- No average effect on loan size
 - ▶ But larger loans for riskier firms granted by high-deposit banks [Table](#)

[Loan terms](#)

[Interaction with bank capitalization](#)

Negative rates overcome rationing

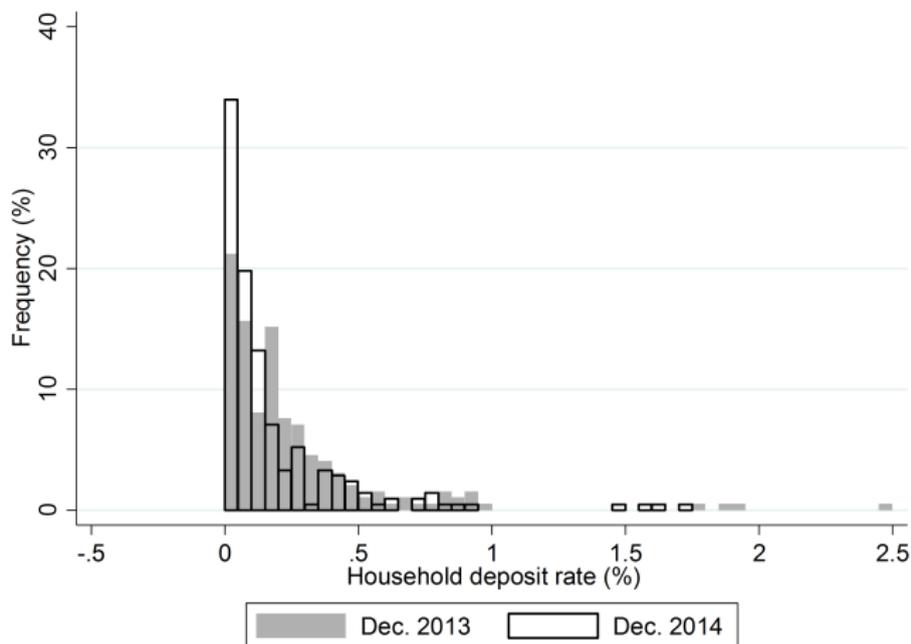
- Risk taking concentrated in private firms
- New lending is not to “zombie firms” [Table](#)
- Riskier borrowers that receive a loan invest more

Sample	$\Delta_{t+1,t} \ln(Investment_i)$	
	2013 – 2014	
Firm risk	Bottom tercile	Top tercile
Deposit ratio \times After(06/2014)	-0.057 (0.118)	0.514** (0.243)
Bank FE	Y	Y
Month-year FE	Y	Y
Country-year FE	Y	Y
Industry-year FE	Y	Y
N	146	149

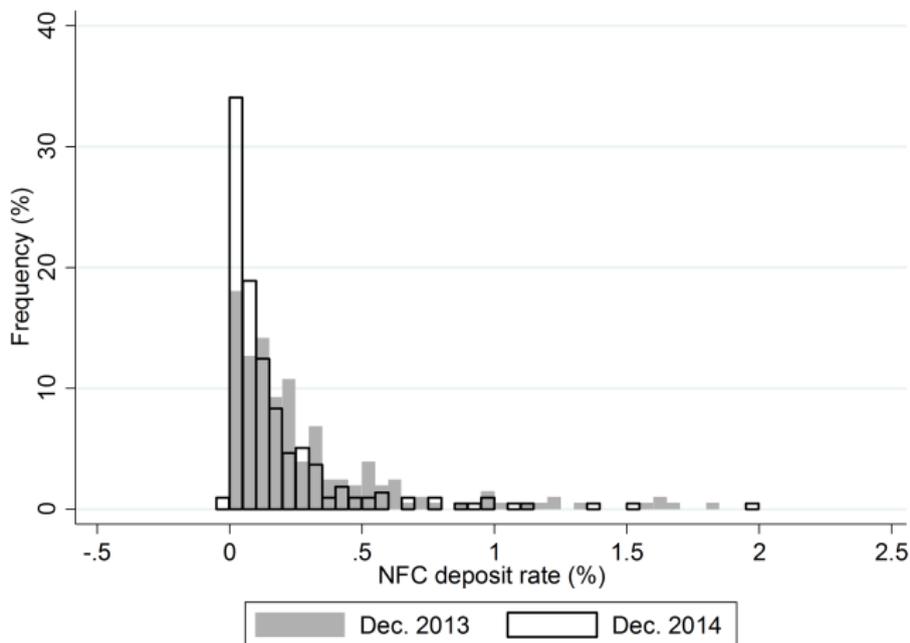
Conclusion

- Transmission of monetary policy depends on bank net worth
 - ▶ Relevant for bank lending and risk taking
- Below zero, transmission of monetary policy operates differently
 - ▶ Zero lower bound on deposit rates \Rightarrow banks' funding structure matters
- Negative policy rates may be contractionary (for high-deposit banks)
 - ▶ Rognlie (2016), Brunnermeier & Koby (2017), Eggertsson et al. (2017)

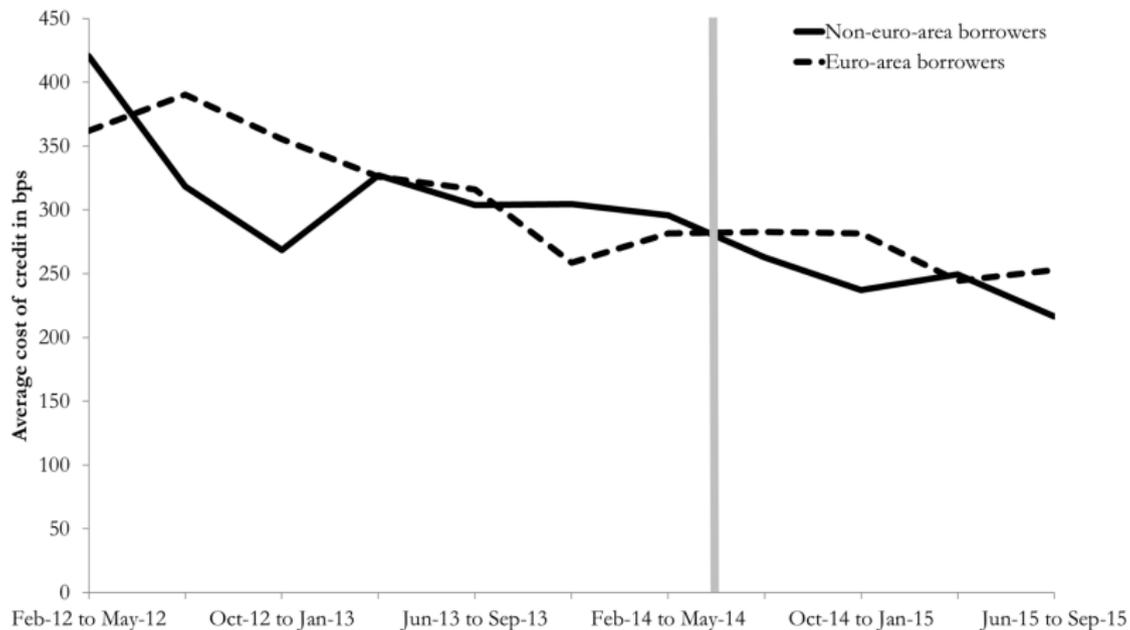
No pass-through of negative policy rate to households' deposit rates



Very limited pass-through of negative policy rate to non-financial corporations' deposit rates

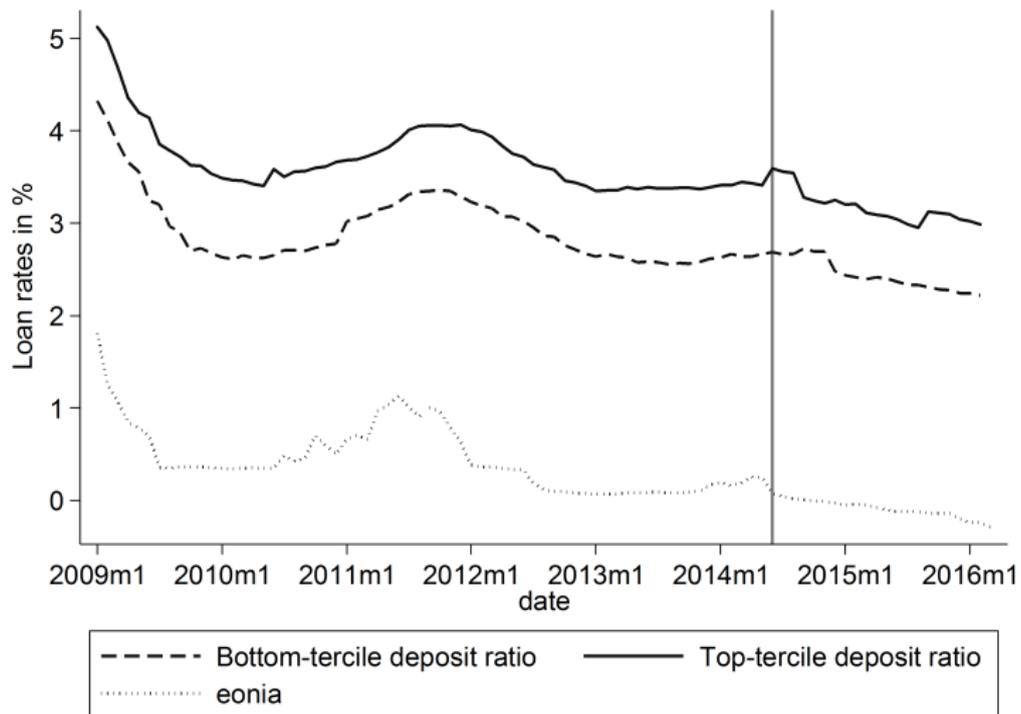


Pass-through of negative (lower) policy rate to loan rates



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Pass-through of negative (lower) policy rate to loan rates



Summary statistics

<i>Loans sample</i>	Mean	Std. dev.	Min	Max	N
$\sigma(ROA_i)^{5y}$	0.041	0.046	0.001	0.488	1,576
$\sigma(\text{return}_i)^{36m}$	0.085	0.036	0.030	0.329	665
ROA in %	4.351	9.144	-98.060	80.010	1,576
Leverage in %	35.902	20.147	0.000	99.985	1,569
No. of employees in thousands	21.687	56.339	0.000	610.989	1,456
Deposit ratio in %	40.793	9.452	0.486	64.527	2,450
Equity ratio in %	5.369	1.088	3.398	13.608	2,450
Eurozone firm $\in \{0, 1\}$	0.781	0.414	0	1	2,450
All-in-drawn spread in bps	264.329	157.035	10	850	791
Loan size in 2016 €bn	0.741	1.932	0.001	68.482	2,426
Secured $\in [0, 1]$	0.690	0.460	0	1	986
Avg. loan share lead arrangers $\in [0, 100]$	23.287	18.602	0	100	591
Financial covenants $\in \{0, 1\}$	0.034	0.181	0	1	2,450
Maturity of loan in months	58.782	27.331	1	345	2,386
No. of lead arrangers	3.644	2.862	1	20	2,450
<i>Bank-level sample</i>	Mean	Std. dev.	Min	Max	N
Deposit ratio in %	43.053	18.688	0.486	78.392	70
Equity ratio in %	6.158	2.878	1.463	22.643	70
$\ln(\text{Total assets})$	11.872	1.361	7.064	14.409	70
Loans-to-assets ratio in %	57.207	17.602	2.025	87.402	66
Return on assets in %	0.064	0.834	-3.288	4.067	70
Net interest margin in %	1.252	0.672	-0.042	3.423	68

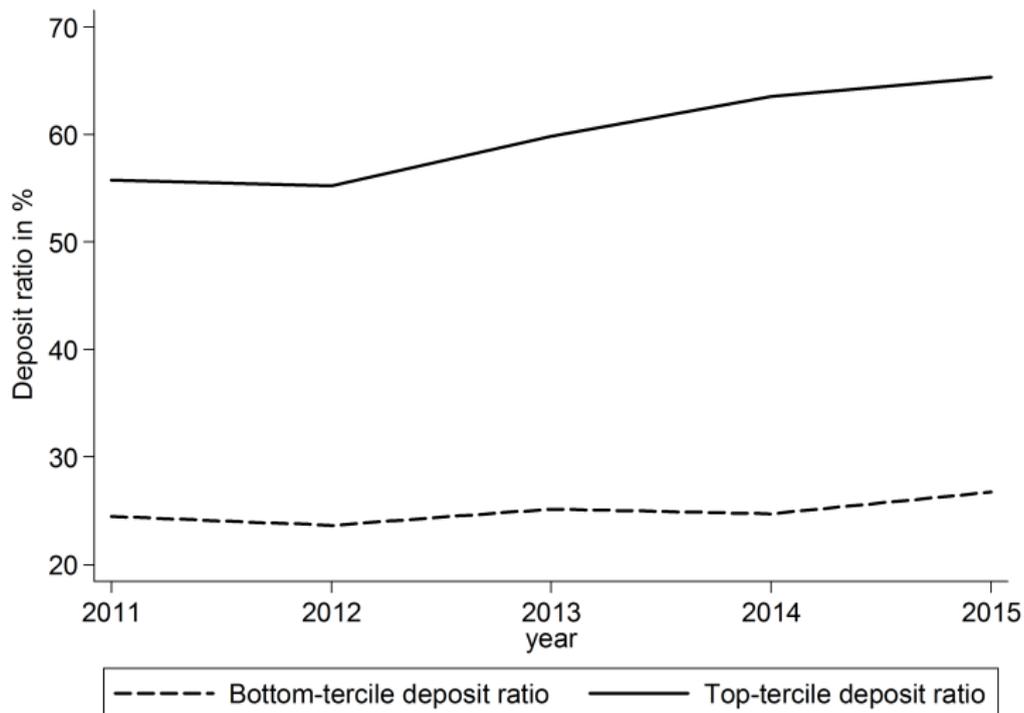
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Further bank-level summary statistics

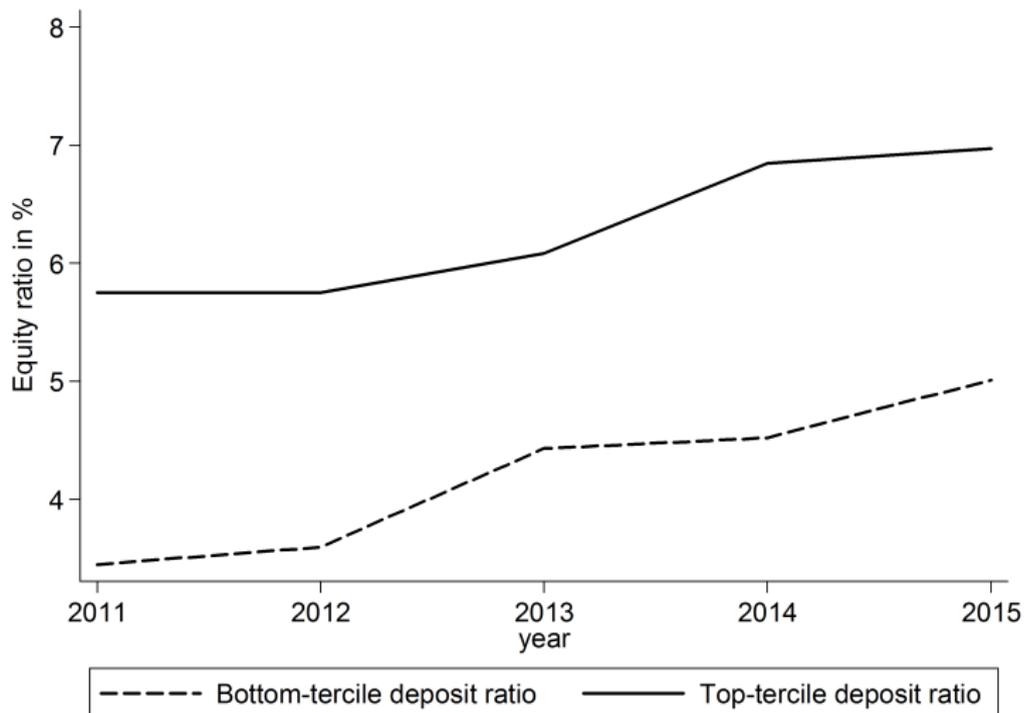
	Tercile	N	Mean	Std. dev	t-stat
Deposit ratio in %	Bottom	24	21.58	12.60	13.82
	Top	23	61.13	6.04	
Equity ratio in %	Bottom	24	4.98	2.26	1.94
	Top	23	6.19	2.04	
ln(Total assets)	Bottom	24	12.22	1.61	2.00
	Top	23	11.46	0.94	
Loans-to-assets ratio in %	Bottom	22	39.92	17.97	6.75
	Top	23	68.44	8.56	
Return on assets in %	Bottom	24	0.04	0.44	0.54
	Top	23	0.17	1.05	
Net interest margin in %	Bottom	23	0.78	0.44	4.98
	Top	23	1.53	0.57	
Number of loans (lead arranger)	Bottom	23	150.48	230.75	1.47
	Top	23	71.30	117.10	
Average loan size in 2016 €bn	Bottom	23	1.19	0.68	0.97
	Top	23	1.02	0.53	
Average loan share $\in [0, 100]$	Bottom	23	17.87	21.63	0.48
	Top	23	15.01	17.04	
Proportion of leveraged loans $\in [0, 1]$	Bottom	23	0.16	0.21	0.54
	Top	23	0.13	0.10	

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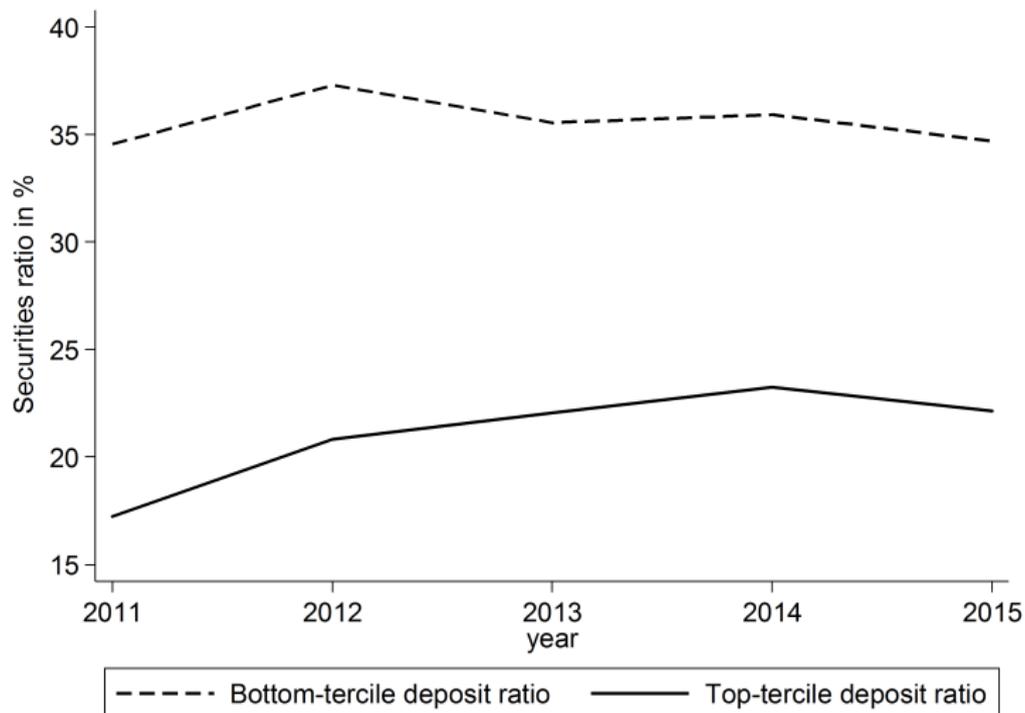
Deposit ratios of high-deposit vs. low-deposit banks



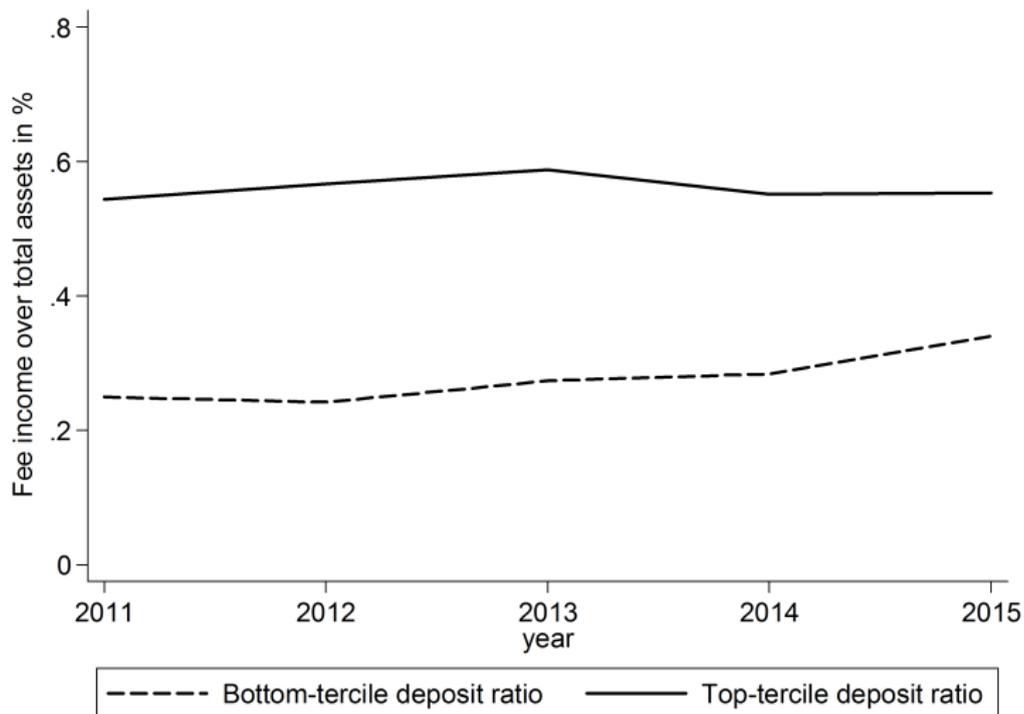
Equity ratios of high-deposit vs. low-deposit banks



Securities ratios of high-deposit vs. low-deposit banks



Fee income of high-deposit vs. low-deposit banks



ROA volatility of bank-financed firms – robustness

Sample Robustness			ln($\sigma(ROA_i)^{5y}$)			
	No low deposits	Alt. dep. ratio	2013 – 2015			2011 – 2015
Deposit ratio \times After(06/2014)	0.020*** (0.006)	0.019*** (0.005)	0.021*** (0.005)	0.023*** (0.006)	0.019*** (0.006)	0.020*** (0.006)
Deposit ratio \times After(07/2012)						-0.008* (0.005)
ln(Assets) $_{t-1}$			0.082 (0.059)			0.078 (0.054)
Securities ratio $_{t-1}$				0.009** (0.004)		0.000 (0.005)
Equity ratio $_{t-1}$					0.036 (0.054)	0.056 (0.039)
Bank FE	Y	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y	Y
Country-year FE	Y	Y	Y	Y	Y	Y
Industry-year FE	Y	Y	Y	Y	Y	Y
N	1,571	1,576	1,576	1,576	1,576	2,490

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Former loan spreads of bank-financed firms

Sample	ln(All-in-drawn spread before sample period)					
	2013 – 2015				2011 – 2015	2011 – 2015, non-Euro
Deposit ratio × After(06/2014)	0.012** (0.006)	0.011** (0.005)	0.012** (0.006)	0.010* (0.006)	0.007 (0.008)	0.041* (0.023)
Deposit ratio × After(07/2012)					-0.003 (0.007)	-0.020 (0.017)
Bank FE	Y	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y	Y
Country FE	N	Y	N	N	N	N
Industry FE	N	Y	Y	N	N	N
Country-year FE	N	N	Y	Y	Y	Y
Industry-year FE	N	N	N	Y	Y	Y
N	1,218	1,218	1,218	1,218	1,746	445

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Stock-return volatility of bank-financed firms

Sample	$\ln(\sigma(\text{return}_i)^{36m})$					
	2013 – 2015				2011 – 2015	2011 – 2015, non-Euro
Deposit ratio \times After(06/2014)	0.005*	0.005*	0.007***	0.007***	0.007*	0.002
	(0.003)	(0.003)	(0.002)	(0.003)	(0.004)	(0.014)
Deposit ratio \times After(07/2012)					-0.000	0.006
					(0.003)	(0.013)
Bank FE	Y	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y	Y
Country FE	N	Y	N	N	N	N
Industry FE	N	Y	Y	N	N	N
Country-year FE	N	N	Y	Y	Y	Y
Industry-year FE	N	N	N	Y	Y	Y
N	825	825	825	825	1,348	363

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ROA volatility of bank-financed firms – sample ends in February 2015

	$\ln(\sigma(ROA_i)^{5y})$			
Deposit ratio \times After(06/2014)	0.014** (0.007)	0.012* (0.007)	0.013 ^(*) (0.008)	0.016* (0.008)
Bank FE	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y
Country FE	N	Y	N	N
Industry FE	N	Y	Y	N
Country-year FE	N	N	Y	Y
Industry-year FE	N	N	N	Y
N	864	864	864	864

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Negative rates outside the Eurozone

Extend sample to include non-Eurozone lenders facing negative rates:

- 1 Denmark (Nationalbanken): -0.20% in July 2012 (raised in late April 2014, negative again starting September 2014)
- 2 Sweden (Riksbanken): -0.10% in February 2015
- 3 Switzerland (SNB): -0.25% on sight deposits exceeding exemption threshold, starting January 2015

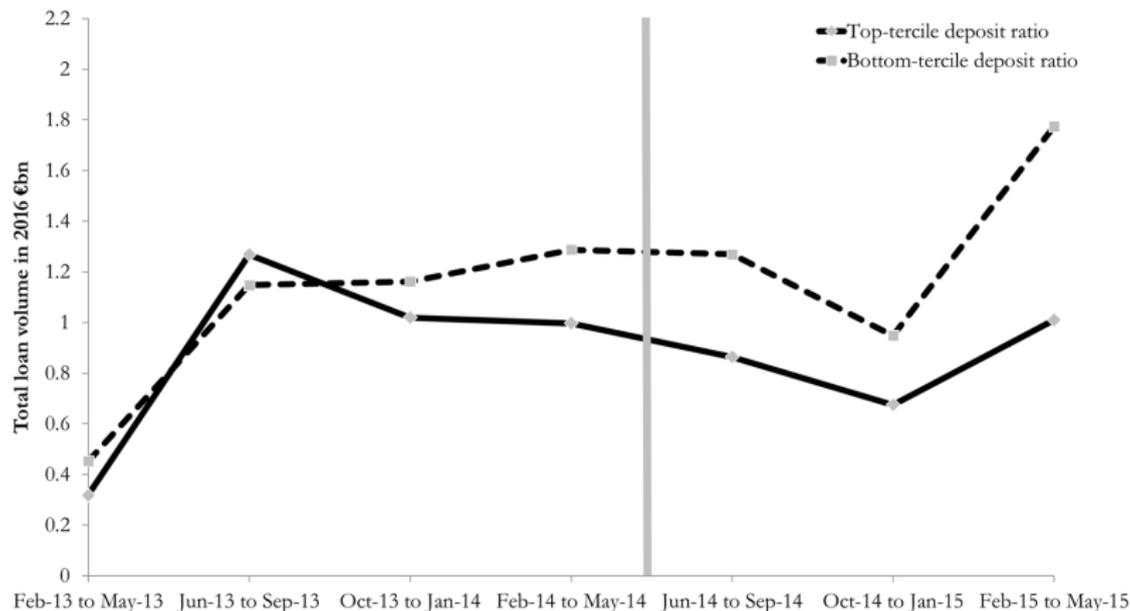
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ROA volatility of bank-financed firms – inclusion of Danish, Swedish, and Swiss banks

	$\ln(\sigma(ROA_i)^{5y})$			
Deposit ratio \times After	0.011*** (0.004)	0.010** (0.004)	0.011** (0.005)	0.012*** (0.005)
Bank FE	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y
Country FE	N	Y	N	N
Industry FE	N	Y	Y	N
Country-year FE	N	N	Y	Y
Industry-year FE	N	N	N	Y
N	1,342	1,342	1,342	1,342

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Treatment effect on total lending by high-deposit vs. low-deposit banks



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ROA volatility of bank-financed firms: new borrowers

	$\ln(\sigma(ROA_i)^{5y})$			
Deposit ratio \times After(06/2014)	0.017*** (0.005)	0.016*** (0.005)	0.017*** (0.006)	0.018*** (0.006)
Bank FE	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y
Country FE	N	Y	N	N
Industry FE	N	Y	Y	N
Country-year FE	N	N	Y	Y
Industry-year FE	N	N	N	Y
N	1,468	1,468	1,468	1,468

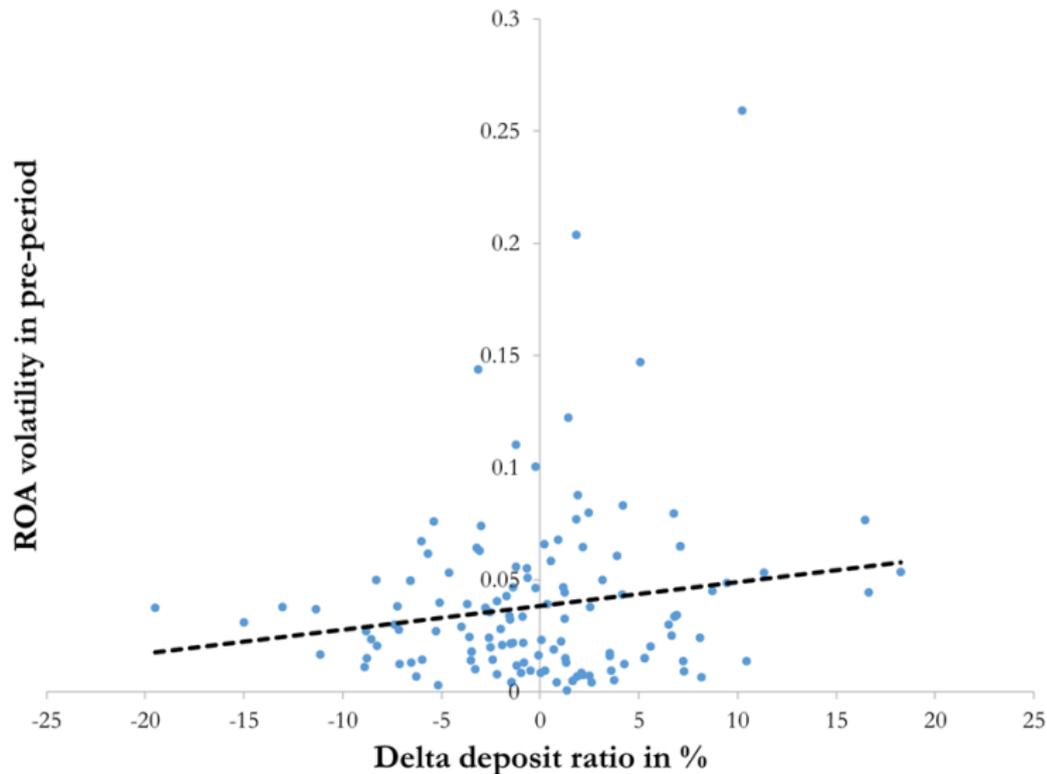
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ROA volatility of bank-financed firms: potential switchers

	$\ln(\sigma(ROA_i)^{5y})$			
Deposit ratio \times After(06/2014)	0.015** (0.007)	0.013* (0.007)	0.012 (0.008)	0.020** (0.009)
Bank FE	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y
Country FE	N	Y	N	N
Industry FE	N	Y	Y	N
Country-year FE	N	N	Y	Y
Industry-year FE	N	N	N	Y
N	1,061	1,061	1,061	1,061

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ROA volatility of firms switching banks



Impact on loan size: new borrowers

	ln(Loan size)				
Deposit ratio \times After(06/2014)	-0.000 (0.006)	-0.005 (0.006)	-0.006 (0.005)	-0.006 (0.006)	-0.011 (0.007)
Deposit ratio \times After(06/2014) \times $\sigma(ROA_i)^{5y}$					0.284** (0.126)
Deposit ratio \times $\sigma(ROA_i)^{5y}$					-0.252*** (0.091)
$\sigma(ROA_i)^{5y} \times$ After(06/2014)					-8.584 (5.413)
$\sigma(ROA_i)^{5y}$					6.886* (3.739)
Bank FE	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y
Country FE	N	Y	N	N	N
Industry FE	N	Y	Y	N	N
Country-year FE	N	N	Y	Y	Y
Industry-year FE	N	N	N	Y	Y
N	1,468	1,468	1,468	1,468	1,468

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Impact on loan size: potential switchers

	ln(Loan size)				
Deposit ratio \times After(06/2014)	-0.006 (0.008)	-0.002 (0.007)	-0.001 (0.008)	-0.000 (0.009)	0.004 (0.011)
Deposit ratio \times After(06/2014) \times $\sigma(ROA_i)^{5y}$					0.021 (0.177)
Deposit ratio \times $\sigma(ROA_i)^{5y}$					-0.207** (0.083)
$\sigma(ROA_i)^{5y} \times$ After(06/2014)					1.608 (7.855)
$\sigma(ROA_i)^{5y}$					5.214 (3.446)
Bank FE	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y
Country FE	N	Y	N	N	N
Industry FE	N	Y	Y	N	N
Country-year FE	N	N	Y	Y	Y
Industry-year FE	N	N	N	Y	Y
N	1,061	1,061	1,061	1,061	1,061

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Impact on loan spreads

- Loan terms are not adjusted to reflect higher risk of borrowers
- Risk taking rather than search for yield

Sample	ln(All-in-drawn spread)					
	2013 – 2015				2011 – 2015	2011 – 2015, non-Euro
Deposit ratio × After(06/2014)	-0.009 (0.006)	-0.006 (0.005)	-0.003 (0.006)	-0.002 (0.007)	-0.001 (0.006)	0.015 (0.012)
Deposit ratio × After(07/2012)					-0.002 (0.004)	0.002 (0.015)
Bank FE	Y	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y	Y
Country FE	N	Y	N	N	N	N
Industry FE	N	Y	Y	N	N	N
Country-year FE	N	N	Y	Y	Y	Y
Industry-year FE	N	N	N	Y	Y	Y
N	791	791	791	791	1,332	367

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Impact on other loan terms

	Secured $\in [0, 1]$	Lead share $\in [0, 1]$	Covenants $\in \{0, 1\}$	$\ln(\text{Maturity})$
Deposit ratio \times After(06/2014)	-0.000 (0.003)	0.003 (0.002)	0.001 (0.001)	-0.001 (0.002)
Bank FE	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y
Country-year FE	Y	Y	Y	Y
Industry-year FE	Y	Y	Y	Y
N	986	591	2,450	2,386

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Interaction of treatment with bank capitalization

- Ambiguous evidence when rates are positive
 - ▶ Jiménez et al. (2014) vs. Dell'Ariccia, Laeven, and Suarez (2016)

Sample	$\ln(\sigma(ROA_i)^{5y})$			
	2013 – 2015		2011 – 2015	
	Bottom tercile	Top tercile	Bottom tercile	Top tercile
Deposit ratio \times After(06/2014)	0.033*** (0.010)	-0.010 (0.014)	0.031*** (0.010)	-0.010 (0.015)
Deposit ratio \times After(07/2012)			-0.007 (0.008)	-0.006 (0.016)
Bank FE	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y
Country-year FE	Y	Y	Y	Y
Industry-year FE	Y	Y	Y	Y
N	527	534	819	832

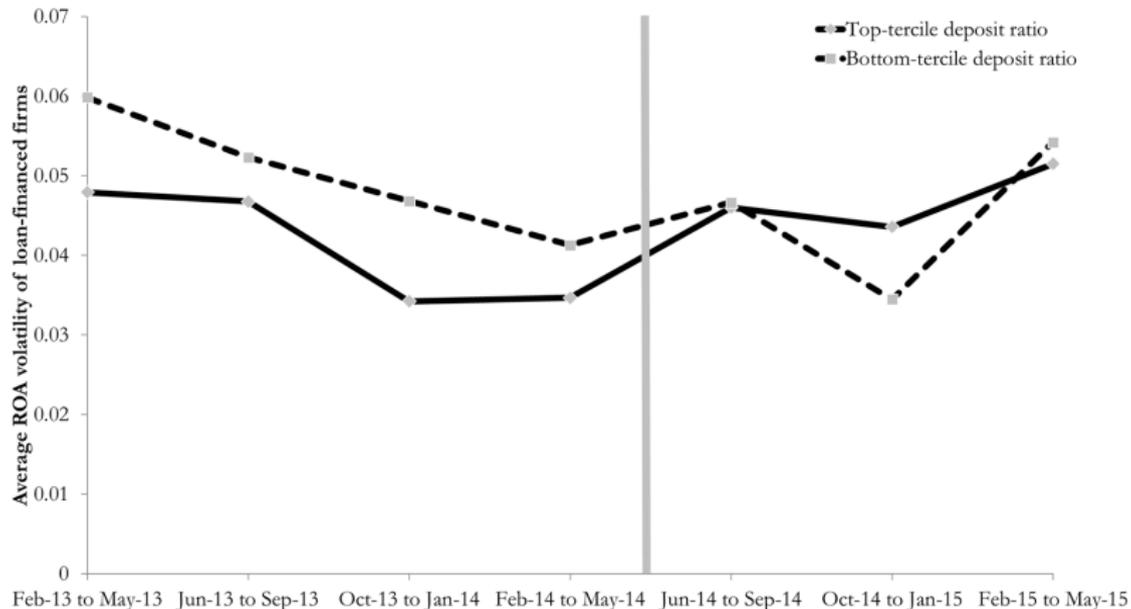
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Negative rates overcome rationing

Sample	$\ln(\sigma(ROA_i)^{5y})$ Private firms	$\ln(\sigma(ROA_i)^{5y})$ Public firms	$Leverage_{i,t-1}$	$\ln(\sigma(ROA_i)^{5y})$ Private and public firms	$ROA_{i,t-1}$
Deposit ratio \times After(06/2014)	0.027*** (0.009)	0.011 (0.007)	-0.238** (0.110)	0.012* (0.007)	-0.036 (0.083)
Deposit ratio \times Exposure \times After(06/2014)				0.019* (0.011)	
Deposit ratio \times Exposure				-0.006 (0.006)	
Exposure \times After(06/2014)				-0.923** (0.451)	
Exposure				0.328 (0.274)	
Bank FE	Y	Y	Y	Y	Y
Month-year FE	Y	Y	Y	Y	Y
Country-year FE	Y	Y	Y	Y	Y
Industry-year FE	Y	Y	Y	Y	Y
N	904	672	1,569	1,576	1,576

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Treatment effect on risk taking by high-deposit vs. low-deposit banks



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