

What happened to profitability? Shocks, challenges and perspectives for euro area banks

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European Stability Mechanism



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¹The views expressed hereafter are those of the authors and do not necessarily reflect the views of the ESM.

Introduction

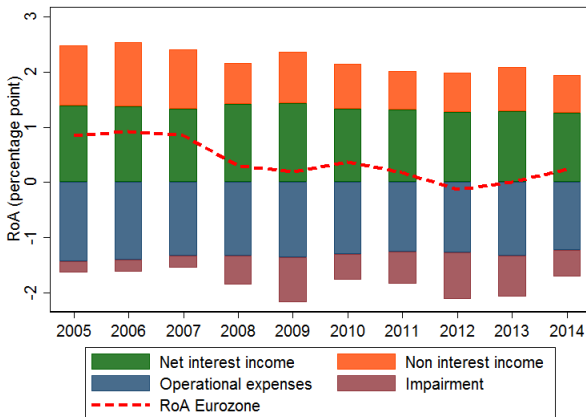
Micro approach: stylised facts

Macro approach: econometric analysis

Conclusion

Motivation

Profitability of euro area banks has been low and may continue to trend downward



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- investment and economic recovery in Europe (IMF 2014)
- the implementation of new bank regulation (Barth et al. 2013)
- and breaking the sovereign-bank feedback loop (Erce 2015)

Contribution

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- **Stocktaking** based on a newly constructed dataset (310 banks in 19 euro area countries from 2005 to 2014) vs. Demircuc-Kunt and Huizinga (2000), Jian et al. (2003), Athanasoglou et al. (2008)
- We are using a **combined micro and macro approach**: financial statement analysis combined with econometric analysis
- We **identify intra-regional heterogeneity** within the euro area vs. ECB (2015)
- We **study** jointly the impact of the macroeconomic environment, country specificity, bank-specific features, and their **interaction** (complementing Albertazzi and Gambacorta 2009, Bolt et al. 2012 and Roengpitya et al. 2014 Roengpitya et al. 2014)

Data

- We use financial statement data (balance sheet and P&L)
 - SNL Financial
 - 310 banks in 19 euro area Member States from 2005 to 2014 (annual)
 - Almost half of the banks are now supervised by the Single Supervisory Mechanism
- Macroeconomic variables: World Bank WDI, IMF IFS and WEO, ECB

▶ Sample details

Key concepts

Our main indicator is **Return on Assets**: Net income before taxes (*NI*) over total assets (lagged one period).

$$NI = NII + (NFCI + NTI + ONI) - OE - IMP \quad (1)$$

$$= NII + NonII - OE - IMP \quad (2)$$

$$= PreIMP - IMP \quad (3)$$

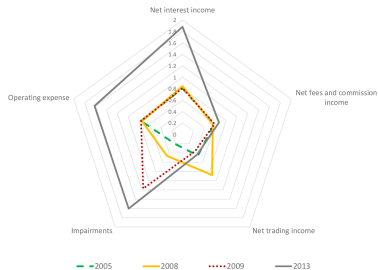
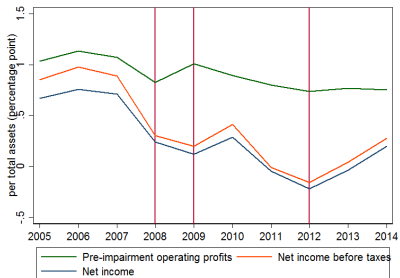
$$= REC + NonREC + ONI - OE - IMP \quad (4)$$

with: *NII* = Net interest income, *NFCI* = Net fees and commissions, *NTI* = Net trading income, *ONI* = Other net income, *NonII* = non interest income, *OE* = overhead expenses, *IMP* = impairments, *PreIMP* = pre-impairment income, *REC* = recurring income and *NonREC* = non recurring income.

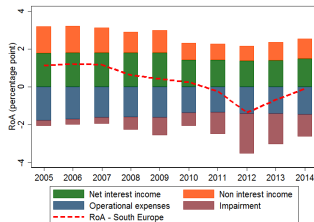
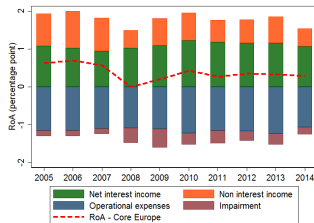
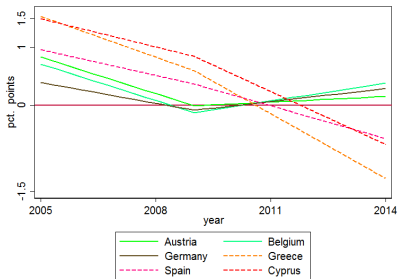
Three stylised facts

- Euro area banks were hit by two shocks of different nature, which have different impact: An initial (short-lived) spillover shock from the United States financial turmoil and a pronounced deterioration in connection to the economic cycle
- Large cross-country heterogeneity exists with regard to banks' sensitivity to these shocks, i.e. Core-Periphery dichotomy
- Bank-specific features matter directly and indirectly

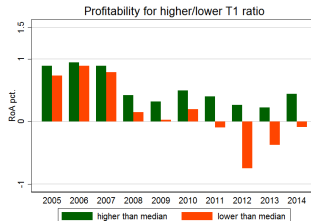
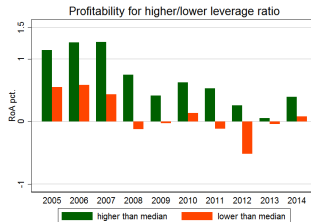
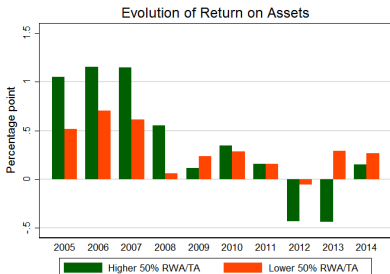
Multiple shocks hit European banks



Large sub-regional heterogeneity



Bank characteristics matter



Estimation methods

$$\Pi_{i,s,t} = X'_{i,s,t}\alpha + Z'_{s,t}\beta + D'\gamma + u_i + \delta_t + \epsilon_{i,s,t} \quad (5)$$

- Panel specification with bank fixed effects (vs. random effects)
- Estimated using OLS
- Standard errors clustered around countries
- Tested with a large set of robustness checks (outliers, specification strategies, controls)

Baseline regression results

	(1)	(2)	(3)	(4)
	Net Income	Net Interest Income	Net Non-Interest Income	Impairment
log(TA)	0.0897 (0.149)	0.0535 (0.0480)	-0.0680 (0.0914)	-0.0123 (0.111)
Equity/TA(t-1)	0.174*** (0.0403)	0.0621*** (0.0129)	0.0601*** (0.0172)	0.103*** (0.0340)
Dep/WS	-0.000228 (0.000288)	0.0000271 (0.0000545)	0.0000127 (0.0000502)	-0.000231 (0.000266)
Loans/Secu	-0.00000520 (0.0000406)	0.0000178* (0.00000871)	-0.000000585 (0.00000882)	-0.0000220 (0.0000413)
RWA/TA(t-1)	0.00436 (0.00528)	0.0128*** (0.00235)	0.00477*** (0.00164)	-0.00299 (0.00457)
ΔGDP	0.106*** (0.0325)	0.00662 (0.00779)	-0.00797 (0.00784)	0.111*** (0.0331)
Inflation	0.0830 (0.0762)	0.0451*** (0.0151)	-0.00244 (0.0165)	0.0573 (0.0649)
Gvt debt (%GDP)	-0.0255*** (0.00351)	-0.000788 (0.00193)	-0.00815*** (0.00184)	-0.0166*** (0.00331)
Fiscal balance (%GDP)	0.0199 (0.0327)	-0.00367 (0.00624)	-0.0124** (0.00491)	0.0270 (0.0267)
eonia	-0.170** (0.0612)	-0.0194 (0.0323)	0.0186 (0.0267)	-0.148*** (0.0499)
VIX	-0.139** (0.0553)	-0.0444* (0.0238)	-0.0238 (0.0226)	-0.101* (0.0539)
VIX2	0.00334** (0.00119)	0.00115** (0.000519)	0.000132 (0.000516)	0.00268** (0.00118)
Constant	0.826 (2.721)	-0.219 (0.946)	2.595 (1.712)	1.383 (2.022)
Observations	1388	1388	1388	1388
R ²	0.323	0.485	0.256	0.228
Adjusted R ²	0.317	0.481	0.250	0.221
r2_btwn	0.165	0.471	0.170	0.0660
rhocoeff	0.630	0.835	0.779	0.631

Crisis shocks

	(1)	(2)	(3)	(4)
	Net Income	Net Interest Income	Net Non-Interest Income	Impairment
log(TA)	0.111 (0.163)	0.0442 (0.0500)	-0.0465 (0.0754)	-0.00210 (0.120)
Equity/TA(t-1)	0.176*** (0.0411)	0.0613*** (0.0128)	0.0622*** (0.0179)	0.104*** (0.0341)
Dep/WS	-0.000216 (0.000279)	0.0000206 (0.0000537)	0.0000290 (0.0000483)	-0.000228 (0.000261)
Loans/Secu	-0.0000637 (0.0000405)	0.0000182** (0.00000852)	-0.00000143 (0.00000811)	-0.0000228 (0.0000412)
RWA/TA(t-1)	0.00290 (0.00491)	0.0135*** (0.00227)	0.00307* (0.00173)	-0.00355 (0.00424)
ΔGDP	0.114*** (0.0335)	0.00442 (0.00852)	-0.00398 (0.00868)	0.118*** (0.0348)
Inflation	0.0754 (0.0795)	0.0471*** (0.0142)	-0.00605 (0.0144)	0.0511 (0.0666)
Gvt debt (%GDP)	-0.0218*** (0.00368)	-0.00256 (0.00204)	-0.00398* (0.00199)	-0.0151*** (0.00337)
Fiscal balance (%GDP)	0.0263 (0.0362)	-0.00726 (0.00547)	-0.00359 (0.00564)	0.0287 (0.0292)
eonia	-0.237*** (0.0794)	0.00599 (0.0334)	-0.0368 (0.0376)	-0.189*** (0.0652)
VIX	-0.130** (0.0611)	-0.0506** (0.0227)	-0.00772 (0.0201)	-0.102 (0.0594)
VIX2	0.00362** (0.00129)	0.00114** (0.000518)	0.0000686 (0.000407)	0.00304** (0.00131)
Crisis1	-0.496* (0.248)	0.169** (0.0717)	-0.353*** (0.105)	-0.329 (0.201)
Crisis2	0.0491 (0.0898)	0.0215 (0.0364)	-0.0788 (0.0579)	0.102 (0.0853)
Constant	0.409 (3.038)	-0.00619 (0.965)	2.087 (1.463)	1.236 (2.204)
Observations	1388	1388	1388	1388
R ²	0.328	0.493	0.282	0.230
Adjusted R ²	0.321	0.488	0.275	0.222
r2_btwn	0.191	0.455	0.258	0.0787
rhocoeff	0.605	0.838	0.765	0.619

Core vs. Periphery differences

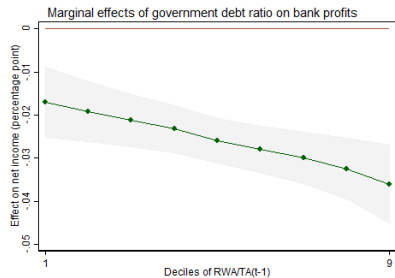
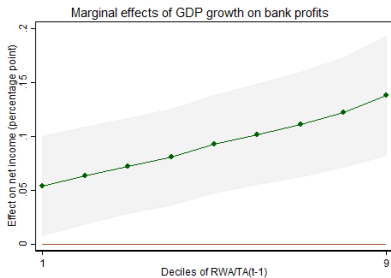
▶ Decomposed results

	(1) All	(2) Core	(3) South
log(TA)	0.111 (0.163)	0.0522 (0.0807)	-0.0316 (0.333)
Equity/TA(t-1)	0.176*** (0.0411)	0.115*** (0.0294)	0.210** (0.0646)
Dep/WS	-0.000216 (0.000279)	0.000471 (0.000303)	-0.000434 (0.000415)
Loans/Secu	-0.00000637 (0.0000405)	-0.00000510 (0.0000983)	-0.0000128 (0.0000488)
RWA/TA(t-1)	0.00290 (0.00491)	0.00407 (0.00261)	-0.00376 (0.00567)
Δ GDP	0.114*** (0.0335)	0.0270* (0.0125)	0.0783** (0.0283)
Inflation	0.0754 (0.0795)	0.0346 (0.0207)	0.0151 (0.180)
Gvt debt (%GDP)	-0.0218*** (0.00368)	0.00517 (0.00568)	-0.0213*** (0.00457)
Fiscal balance (%GDP)	0.0263 (0.0362)	0.0262 (0.0315)	0.00731 (0.0395)
eonia	-0.237*** (0.0794)	-0.132* (0.0568)	-0.0847 (0.0866)
VIX	-0.130** (0.0611)	-0.0130 (0.0299)	-0.0274 (0.135)
VIX2	0.00362** (0.00129)	0.000504 (0.000664)	0.00125 (0.00248)
Crisis1	-0.496* (0.248)	-0.685*** (0.162)	-0.491 (0.565)
Crisis2	0.0491 (0.0898)	-0.104 (0.118)	-0.000169 (0.147)
Constant	0.409 (3.038)	-0.992 (1.670)	2.146 (6.252)
Observations	1388	728	566
R ²	0.328	0.274	0.371
Adjusted R ²	0.321	0.260	0.355
r2_btwn	0.191	0.313	0.194
rhocoeff	0.605	0.491	0.609

Indirect effects of bank business models

	(1) Baseline	(2) Interacted GDP	(3) Interacted debt
log(TA)	0.0897 (0.149)	0.103 (0.149)	0.123 (0.137)
Equity/TA(t-1)	0.174*** (0.0403)	0.180*** (0.0434)	0.187*** (0.0375)
Dep/WS	-0.000228 (0.000288)	-0.000223 (0.000283)	-0.000204 (0.000301)
Loans/Secu	-0.00000520 (0.0000406)	-0.00000428 (0.0000400)	-0.00000488 (0.0000401)
RWA/TA(t-1)	0.00436 (0.00528)	0.00215 (0.00539)	0.0260* (0.0124)
Δ GDP	0.106*** (0.0325)	0.0267 (0.0315)	0.0923*** (0.0292)
Inflation	0.0830 (0.0762)	0.0652 (0.0769)	0.0558 (0.0792)
Gvt debt (%GDP)	-0.0255*** (0.00351)	-0.0256*** (0.00327)	-0.0109 (0.00724)
Fiscal balance (%GDP)	0.0199 (0.0327)	0.0197 (0.0318)	0.0139 (0.0281)
eonia	-0.170** (0.0612)	-0.159** (0.0586)	-0.143*** (0.0476)
VIX	-0.139** (0.0553)	-0.101* (0.0495)	-0.0841 (0.0633)
VIX2	0.00334** (0.00119)	0.00251** (0.00103)	0.00211 (0.00132)
ΔGDP*RWA/TA(t-1)		0.00136*** (0.000451)	
Gvt.Debt*RWA/TA(t-1)			-0.000307** (0.000135)
Constant	0.826 (2.721)	0.283 (2.677)	-1.449 (2.841)
Observations	1388	1388	1388
R ²	0.323	0.330	0.337
Adjusted R ²	0.317	0.324	0.330
Pvalue_macro		0.00237	0.000000450
Pvalue_RWA		0.0167	0.102

Indirect effects of bank business models



Summary

- Euro area banks' profitability remains low and does not go back to the pre-crisis level, despite a recent improvement
- Banks were hit by 2 shocks: in 2008 on the securities portfolio and since 2010 on the loan portfolio
- Banks in the core and peripheral Europe endured these shocks in different ways
- Banks' capital, funding and investment structures also affect their profitability, directly through changes in portfolio valuation or funding costs and indirectly via an interaction with the general macroeconomic environment

Next steps

- To test the current results using alternative estimation methods
- To explore more the theoretical underpinning of the effects of bank business models on profitability
- To examine the interaction between new regulations and banks sensitivity to the macro environment

Thank you!

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A glance at our sample

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Ctry	banks	Av. Ass. (€bn.)	Asset distribution		
			C. loans (%)	B. loans (%)	Sec. (%)
Austria	13	81.11	51.97	15.35	20.52
Belgium	14	201.98	51.64	12.12	30.86
Cyprus	5	21.27	68.14	12.35	16.37
Germany	61	154.69	48.38	15.25	28.42
Estonia	30	8.20	81.93	7.89	3.76
Spain	47	128.82	67.18	8.18	18.43
Finland	6	84.32	53.71	14.10	22.73
France	56	286.74	48.73	15.48	25.46
Greece	5	66.53	70.30	4.92	17.17
Ireland	13	97.97	55.70	17.82	26.83
Italy	30	114.85	66.13	12.92	16.00
Lithuania	3	5.41	77.07	5.63	8.60
Luxembourg	13	70.92	41.17	21.45	26.76
Latvia	3	4.46	70.53	8.86	9.75
Malta	2	6.21	55.37	10.61	27.29
Netherlands	21	333.52	58.41	8.50	22.79
Portugal	8	61.47	70.61	5.56	18.19
Slovenia	3	8.95	59.16	4.72	21.10
Slovakia	3	10.76	63.07	6.41	26.61
All	311	159.11	57.17	12.69	23.02

Core vs. Periphery - decomposition

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	NII Core	NII South	(NonII) Core	NonII South	IMP Core	IMP South
log(TA)	0.0523 (0.0522)	0.0558 (0.0800)	0.0546 (0.0750)	-0.187 (0.0963)	-0.102** (0.0386)	-0.0439 (0.239)
Equity/TA(t-1)	0.0769*** (0.0145)	0.0522** (0.0162)	0.110** (0.0407)	0.0485 (0.0246)	0.0118 (0.0101)	0.142** (0.0502)
Dep/WS	0.000757** (0.000217)	0.0000519 (0.0000649)	-0.000105 (0.000419)	0.00000829 (0.0000759)	0.000195* (0.0000896)	-0.000467 (0.000343)
Loans/Secu	0.0000636* (0.0000313)	0.00000605 (0.00000740)	-0.0000121 (0.0000659)	-0.00000622 (0.0000116)	-0.0000485 (0.0000512)	-0.0000212 (0.0000479)
RWA/TA(t-1)	0.00869** (0.00275)	0.0148*** (0.00288)	0.0000976 (0.00244)	0.00591** (0.00187)	0.0000597 (0.00262)	-0.0103* (0.00472)
Δ GDP	0.0161 (0.0107)	-0.0155 (0.00852)	0.00761 (0.0110)	-0.00309 (0.0209)	0.0190** (0.00619)	0.0990** (0.0335)
Inflation	0.00783 (0.0210)	0.0232 (0.0121)	0.0457 (0.0343)	-0.0143 (0.0258)	0.0116 (0.0333)	0.0203 (0.152)
Gvt debt (%GDP)	0.00264 (0.00395)	-0.000258 (0.00142)	-0.0114 (0.00672)	-0.00706 (0.00397)	-0.00143 (0.00528)	-0.0128* (0.00612)
Fiscal balance (%GDP)	0.00844 (0.0169)	-0.0134 (0.00923)	0.00576 (0.0273)	-0.0119* (0.00582)	-0.00353 (0.0203)	0.0205 (0.0330)
eonias	-0.0287 (0.0399)	0.0728** (0.0275)	-0.117 (0.0735)	0.00915 (0.0500)	-0.00509 (0.0294)	-0.138 (0.0763)
VIX	-0.00264 (0.0196)	-0.0569 (0.0317)	-0.0374 (0.0256)	-0.0640* (0.0307)	-0.00814 (0.0424)	0.0286 (0.119)
VIX2	0.000374 (0.000446)	0.00118 (0.000759)	0.000848 (0.000743)	0.00104 (0.000756)	0.0000615 (0.000868)	0.000321 (0.00236)
Crisis1	-0.0191 (0.0888)	0.0464 (0.0856)	-0.438* (0.183)	-0.0211 (0.170)	-0.142 (0.0902)	-0.513 (0.411)
Crisis2	0.0303 (0.0494)	-0.0213 (0.0410)	-0.140 (0.103)	0.0532 (0.0646)	0.0374 (0.0629)	-0.0315 (0.194)
Constant	-1.058 (0.772)	-0.125 (1.603)	0.894 (1.683)	5.288** (1.844)	1.819** (0.443)	0.634 (4.380)
Observations	728	566	728	566	728	566
R ²	0.274	0.689	0.285	0.373	0.165	0.248
Adjusted R ²	0.260	0.681	0.271	0.357	0.148	0.229
r2_btwn	0.486	0.368	0.257	0.210	0.000725	0.0891
rhocoeff	0.773	0.860	0.745	0.809	0.593	0.574