Does High Profitability Hamper Stability for European Banks?

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Motivation

- **Concerns of policymakers on low profitability of banks based on the view that profitability favors bank stability**.
  - ECB Executive Board member Yves Mersch claimed that “one also has to ask if a bank cannot weather headwinds over a few years still has a sufficiently robust business model to stay in the market” (October 3, 2016).
  - ECB’s Chief Economist Peter Praet: “the profitability of the [banking] sector will be a key consideration” in assessing how the ECB can help to stimulate the Eurozone economy (July 1, 2016).
  - Head of Singapore central bank, Ravi Menon: “banks need to be profitable in order to be strong” (April 20, 2017).

Motivation

- **Why would profitability favor stability?**
- From a theoretical perspective:
- More profitable banks can increase their core capital and ensure their viability.
- Keeley (1990): profitable banks are more adverse to risk, as they can lose more value if downside risks realize.

Motivation

- **Why would profitability favor stability?**

- From a theoretical perspective:

- But this dominant view:
  - Contradicts the risk-return tradeoff according to which higher profits only occur if investors are willing to accept the possibility of higher losses.
  - Has been recently challenged by Martynova, Ratnovski and Vlahu (2015): profitable banks have more incentives to take risks because banks with a profitable core business can borrow more and can then take greater risks in side activities.

Motivation

- **Why would profitability favor stability?**
- From an empirical perspective:
- Mixed evidence on the impact of profitability on bank distress.
- Studies on the US and on emerging markets are prone to support a negative link between bank profitability and bank failure
  - Wheelock and Wilson (2000) Cole and White (2011); Arena (2008) for 8 countries during 90's banking crises; Lin and Yang (2016) for 11 Asian countries.

Motivation

- **Why would profitability favor stability?**

- From an empirical perspective:

- European-based investigations do not support the view that greater profitability would lower the occurrence of a bank distress.
  - Pogoshyan and Cihak (2011) find evidence of a negative impact of ROE on occurrence of distress, but this result does not stand for all robustness checks.
  - Betz et al. (2014) observe that ROE is not significant to explain bank distress while ROA is significant and positive.

Objective of the paper

- **To examine the impact of high profitability on the occurrence of bank distress in Europe.**

- Hypothesis: profitability can be beneficial for stability until a certain level but can turn detrimental at high level.

- First empirical investigation on this question.
- Use of a dataset on distress in European banks combining balance sheet indicators of banks and hand-collected information.
- Different indicators to define high bank profitability.

Data

- We collect bank-level consolidated financial statements on Bloomberg for European countries.
- We apply a series of filters to the original data.
  1. First, we drop observations where total assets are lower than 0.1 million of euros.
  2. Second, we do not consider observations where total assets are lower than book equity.
  3. Third, a few banks suffer from very low profitability over the period: we thus drop observations for which Return on Assets is lower than -100% over the period in order not to bias the estimates.
  4. Fourth, we drop banks where information on some financial ratios included in our model is missing.
- Final sample: an unbalanced panel composed of 266 banks from 26 European countries over the period June 2001 to December 2014.

Methodology

- Logistic regressions
- Explained variable: bank distress
- Explaining variables lagged (from 1 to 8 semesters):
  - profitability (absolute / relative)
  - control variables

Methodology

- **Definition of bank distress**
- Following Betz et al. (2014), we build a database of bank distressed events, which comprises three types of financial distress events:
  - state intervention following bank financial difficulties: identification via the state aid cases website of the Competition Directorate General of the European Commission.
  - bank defaults (including bankruptcies and liquidations): information from Moody's *« Annual default study: corporate default and recovery rates ».*
  - banks taken over by other banks due to financial difficulties: systematic review of M&A banking deals listed by SNL. Financial distress defined by a negative coverage ratio.
- In total, we identify 43 financial distresses in our sample.

Methodology

- **Profitability measures**
- Absolute indicators: ROA and ROE.
- 4 high profitability indicators:
- 1. *Top ROA* (*Top ROE*) as a dummy variable equal to 1 if a bank is in the ROA (ROE) last decile at a given date.
- 2. *ROA DEV* (*ROE DEV*) as the deviation between bank's ROA (ROE) from its country average at a given date.
- 3. Top ROA DEV (Top ROE DEV) as a dummy variable which equals 1 if a bank is in the ROA DEV (ROE DEV) top decile at a given period.
- 4. *Top ROA2%* (*Top ROE10%*) which takes the value of 1 if a bank's ROA (ROE) is above 2% (10%) at a given date.

Methodology

- **Control variables**
- 3 bank-specific variables:
  - bank size: log of total assets.
  - bank capitalization: accounting capital ratio.
  - dependence of the bank's short term funding: ratio of market funding with a maturity of less than one year divided by bank's total liabilities.
- 4 country-level variables:
  - real GDP growth.
  - inflation.
  - concentration of the banking market.
  - ratio of private credit from banks to GDP.

Results: with ROA

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-8.611***	-7.994***	-5.636***	-3.079*	-1.520	-2.863	-2.428	-5.896***
	(1.742)	(1.539)	(1.487)	(1.705)	(1.822)	(1.810)	(1.877)	(1.971)
ROA	**-30.096*** **	**-10.021**	**-10.669**	**-11.487**	**-2.442**	**40.665** **	**40.866**	**9.572**
	(6.899)	**(7.729)**	**(10.994)**	**(11.948)**	**(28.321)**	**(18.357)**	**(27.171)**	**(24.185)**
Size	0.098	0.077	0.023	-0.002	-0.024	-0.060	-0.069	-0.014
	(0.075)	(0.073)	(0.075)	(0.081)	(0.095)	(0.092)	(0.095)	(0.103)
ST fund ratio	1.943*	3.147***	1.459	1.553	0.549	0.636	-0.736	0.843
	(1.107)	(1.004)	(1.065)	(1.135)	(1.622)	(1.535)	(1.528)	(1.586)
Cap ratio	-14.478***	-4.545	-6.374*	-6.625*	-7.182	-18.190***	-23.188***	-10.685
	(5.231)	(4.213)	(3.721)	(4.021)	(6.333)	(6.762)	(7.828)	(6.762)
GDP growth	-18.144***	-9.893	8.688	17.198***	9.109	-19.336***	-8.745	21.490***
	(4.296)	(6.110)	(7.736)	(6.643)	(7.148)	(5.789)	(6.636)	(6.962)
Inflation	53.734***	39.870***	10.244	-45.626***	-76.684***	19.064	36.601***	23.374***
	(8.412)	(8.466)	(10.650)	(17.568)	(19.525)	(17.320)	(11.311)	(9.027)
3bank asset	2.178*	1.152	-0.019	-1.681*	-2.165**	-0.415	-0.827	1.500
	(1.137)	(0.934)	(0.899)	(0.970)	(1.062)	(1.024)	(1.038)	(1.001)
Credit to GDP	0.965***	1.013***	1.117***	1.195***	1.107**	0.460	0.454	0.580
	(0.365)	(0.334)	(0.352)	(0.404)	(0.468)	(0.423)	(0.487)	(0.558)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1857	0.0837	0.0453	0.0624	0.0909	0.0566	0.0668	0.0727
Log-likelihood	-179.18	-193.98	-186.52	-171.76	-155.74	-150.39	-138.05	-126.56
LLR p-value	<0.0001	<0.0001	0.024	0.004	0.000	0.021	0.011	0.011

Results: with ROE

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.067***	-7.657***	-5.347***	-2.924	-1.473	-4.069**	-3.119	-6.037***
	(1.846)	(1.603)	(1.557)	(1.832)	(1.823)	(1.725)	(1.932)	(1.958)
ROE	**0.026**	**0.060**	**0.046**	**0.023**	**0.015**	**-0.496**	**1.066**	**0.115**
	(0.024)	**(0.043)**	**(0.048)**	**(0.031)**	**(0.100)**	**(1.053)**	**(1.263)**	**(1.078)**
Size	0.022	0.063	0.009	-0.010	-0.027	0.000	-0.040	-0.008
	(0.084)	(0.078)	(0.080)	(0.088)	(0.094)	(0.088)	(0.092)	(0.101)
ST fund ratio	1.741	3.063***	1.354	1.452	0.526	0.770	-0.688	0.880
	(1.116)	(1.014)	(1.063)	(1.152)	(1.605)	(1.552)	(1.565)	(1.582)
Cap ratio	-21.844***	-6.313	-8.104*	-7.920	-7.507	-10.511**	-16.919**	-9.286
	(6.856)	(5.168)	(4.379)	(5.065)	(5.919)	(5.155)	(7.066)	(5.844)
GDP growth	-23.226***	-11.704*	6.998	15.748**	8.805	-15.705**	-7.284	22.038***
	(4.177)	(6.311)	(7.799)	(6.957)	(7.637)	(6.420)	(6.712)	(6.997)
Inflation	54.628***	40.111***	10.590	-44.799**	-76.523***	19.203	37.364***	23.547***
	(8.457)	(8.550)	(10.625)	(17.401)	(19.487)	(17.793)	(11.118)	(8.943)
3bank asset	1.675	1.011	-0.097	-1.707*	-2.175**	0.033	-0.594	1.534
	(1.101)	(0.908)	(0.883)	(0.975)	(1.049)	(1.050)	(1.026)	(1.002)
Credit to GDP	1.006***	1.020***	1.118***	1.182***	1.103**	0.467	0.407	0.584
	(0.354)	(0.333)	(0.350)	(0.405)	(0.477)	(0.426)	(0.491)	(0.558)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1636	0.0832	0.0446	0.0616	0.0909	0.0499	0.0627	0.0724
Log-likelihood	-184.04	-194.07	-186.65	-171.92	-155.74	-151.47	-138.65	-126.61
LLR p-value	<0.0001	<0.0001	0.026	0.004	0.000	0.044	0.017	0.011

Results: *Top ROA*=1 if a bank is in the ROA last decile at a given date.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.213***	-7.869***	-5.607***	-3.048*	-1.298	-3.783**	-2.821	-6.214***
	(1.839)	(1.520)	(1.513)	(1.834)	(1.918)	(1.762)	(1.867)	(2.008)
Top ROA	**-0.550**	**-1.194**	**-1.265**	**-0.359**	**0.494**	**0.042**	**0.791**	**-0.399**
	(1.103)	**(1.061)**	**(1.053)**	**(0.747)**	**(0.713)**	**(0.874)**	**(0.663)**	**(0.887)**
Size	0.025	0.067	0.014	-0.008	-0.029	-0.016	-0.044	0.001
	(0.083)	(0.074)	(0.078)	(0.087)	(0.096)	(0.086)	(0.091)	(0.104)
ST fund ratio	1.787	3.125***	1.463	1.517	0.416	0.794	-0.656	0.901
	(1.108)	(1.015)	(1.065)	(1.133)	(1.607)	(1.556)	(1.506)	(1.586)
Cap ratio	-20.234***	-3.913	-5.359	-6.763	-9.163	-11.606*	-20.506***	-7.726
	(6.778)	(4.512)	(4.321)	(5.404)	(7.251)	(6.599)	(7.524)	(6.767)
GDP growth	-22.583***	-10.454	8.517	16.275**	8.324	-16.551***	-6.318	22.343***
	(4.167)	(6.437)	(7.799)	(6.940)	(7.645)	(6.147)	(6.500)	(7.202)
Inflation	54.640***	40.435***	11.104	-44.791**	-76.798***	19.576	36.428***	23.663***
	(8.428)	(8.669)	(10.727)	(17.433)	(19.427)	(17.932)	(10.279)	(8.956)
3bank asset	1.746	1.100	-0.058	-1.678*	-2.237**	-0.070	-0.677	1.561
	(1.098)	(0.909)	(0.884)	(0.972)	(1.063)	(1.026)	(1.038)	(1.003)
Credit to GDP	0.987***	1.001***	1.130***	1.192***	1.091**	0.447	0.466	0.584
	(0.354)	(0.339)	(0.359)	(0.407)	(0.468)	(0.431)	(0.484)	(0.569)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1636	0.0869	0.0496	0.0621	0.0922	0.0487	0.0653	0.0734
Log-likelihood	-184.05	-193.30	-185.68	-171.82	-155.51	-151.66	-138.27	-126.47
LLR p-value	<0.0001	<0.0001	0.013	0.004	0.000	0.050	0.013	0.010

Results: *Top ROE*=1 if a bank is in the ROE last decile at a given date.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.129***	-7.665***	-5.348***	-2.970	-1.588	-3.820**	-3.222*	-6.076***
	(1.848)	(1.596)	(1.554)	(1.838)	(1.820)	(1.728)	(1.842)	(1.943)
Top ROE	**-0.108**	**-0.430**	**-0.204**	**0.129**	**0.426**	**0.270**	**0.095**	**-0.696**
	(0.588)	(0.593)	(0.527)	(0.473)	(0.508)	(0.567)	(0.571)	(0.695)
Size	0.023	0.064	0.009	-0.008	-0.023	-0.015	-0.030	-0.002
	(0.084)	(0.077)	(0.079)	(0.088)	(0.094)	(0.085)	(0.087)	(0.100)
ST fund ratio	1.783	3.081***	1.386	1.432	0.418	0.791	-0.672	1.007
	(1.107)	(1.016)	(1.051)	(1.162)	(1.633)	(1.554)	(1.537)	(1.595)
Cap ratio	-21.224***	-6.219	-8.116*	-7.678	-6.930	-11.178*	-16.827**	-9.637
	(6.751)	(5.084)	(4.371)	(5.071)	(5.715)	(5.919)	(6.690)	(5.895)
GDP growth	-22.613***	-10.704*	7.697	15.579**	8.049	-16.649***	-5.960	22.821***
	(4.092)	(6.252)	(7.876)	(6.850)	(7.495)	(6.030)	(6.595)	(6.998)
Inflation	54.322***	40.076***	10.634	-44.783***	-75.722***	19.018	37.700***	25.035***
	(8.422)	(8.565)	(10.600)	(17.234)	(19.185)	(17.879)	(11.218)	(9.218)
3bank asset	1.720	1.029	-0.111	-1.675*	-2.084**	-0.068	-0.561	1.493
	(1.093)	(0.911)	(0.891)	(0.975)	(1.059)	(1.011)	(1.029)	(1.040)
Credit to GDP	0.994***	1.024***	1.129***	1.167***	1.050**	0.437	0.444	0.608
	(0.353)	(0.335)	(0.350)	(0.401)	(0.471)	(0.420)	(0.481)	(0.565)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1630	0.0839	0.0447	0.0617	0.0926	0.0494	0.0608	0.0761
Log-likelihood	-184.19	-193.93	-186.64	-171.90	-155.44	-151.55	-138.94	-126.10
LLR p-value	<0.0001	<0.0001	0.026	0.004	0.000	0.046	0.021	0.008

Results: *ROA DEV* as the deviation between bank's ROA from its country average at a given date.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.836***	-7.738***	-5.228***	-2.623	-0.989	-2.920	-2.047	-6.279***
	(1.814)	(1.595)	(1.568)	(1.871)	(1.997)	(1.806)	(1.875)	(1.930)
ROA DEV	**-21.721****	**-0.500**	**9.101**	**19.177**	**25.996**	**40.506*****	**59.529*****	**-10.014**
	(10.978)	**(12.725)**	**(16.988)**	**(21.902)**	**(20.559)**	**(14.141)**	**(16.141)**	**(16.595)**
Size	0.058	0.066	0.003	-0.022	-0.050	-0.058	-0.083	0.004
	(0.079)	(0.077)	(0.080)	(0.088)	(0.102)	(0.088)	(0.092)	(0.102)
ST fund ratio	1.808	3.090***	1.340	1.394	0.446	0.747	-0.879	0.937
	(1.126)	(1.012)	(1.069)	(1.167)	(1.625)	(1.541)	(1.529)	(1.559)
Cap ratio	-18.549***	-5.845	-8.660**	-9.472*	-10.088	-16.126***	-24.454***	-8.291
	(6.642)	(5.003)	(4.295)	(4.943)	(7.029)	(6.078)	(6.904)	(5.957)
GDP growth	-22.929***	-11.249*	7.350	15.936**	9.064	-15.866***	-4.853	22.418***
	(4.188)	(6.224)	(7.679)	(6.932)	(7.632)	(6.158)	(6.740)	(7.091)
Inflation	53.567***	39.874***	10.520	-45.055***	-76.554***	20.496	42.389***	22.645**
	(8.374)	(8.565)	(10.733)	(17.332)	(19.479)	(18.525)	(10.412)	(9.193)
3bank asset	1.894*	1.049	-0.114	-1.768*	-2.274**	-0.245	-0.835	1.603
	(1.098)	(0.909)	(0.889)	(0.994)	(1.078)	(1.038)	(1.056)	(0.986)
Credit to GDP	1.018***	1.013***	1.107***	1.170***	1.101**	0.407	0.381	0.596
	(0.352)	(0.334)	(0.354)	(0.412)	(0.482)	(0.430)	(0.496)	(0.567)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1683	0.0826	0.0447	0.0628	0.0934	0.0562	0.0770	0.0728
Log-likelihood	-183.02	-194.21	-186.64	-171.71	-155.31	-150.46	-136.54	-126.54
LLR p-value	<0.0001	<0.0001	0.026	0.003	<0.0001	0.022	0.004	0.011

Results: *ROE DEV* as the deviation between bank's ROE from its country average at a given date.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.107***	-7.708***	-5.369***	-2.936	-1.502	-3.811**	-3.267*	-5.878***
	(1.839)	(1.598)	(1.554)	(1.833)	(1.813)	(1.727)	(1.818)	(1.982)
ROE DEV	**-0.064**	**-0.097**	**-0.091**	**-0.040**	**0.108**	**0.449**	**0.810**	**-2.899**
	(0.047)	**(0.078)**	**(0.069)**	**(0.083)**	**(0.124)**	**(1.538)**	**(1.461)**	**(2.916)**
Size	0.025	0.067	0.010	-0.009	-0.025	-0.014	-0.024	-0.024
	(0.084)	(0.078)	(0.080)	(0.088)	(0.094)	(0.084)	(0.085)	(0.104)
ST fund ratio	1.731	3.064***	1.355	1.454	0.540	0.811	-0.643	0.799
	(1.117)	(1.013)	(1.060)	(1.150)	(1.606)	(1.544)	(1.520)	(1.612)
Cap ratio	-21.768***	-6.120	-8.028*	-7.875	-7.299	-11.509*	-16.935***	-9.412
	(6.796)	(5.127)	(4.367)	(5.059)	(5.809)	(6.128)	(6.471)	(5.946)
GDP growth	-23.583***	-11.976*	6.763	15.699**	9.188	-16.026***	-4.856	18.977**
	(4.264)	(6.246)	(7.790)	(6.955)	(7.653)	(5.863)	(6.337)	(8.175)
Inflation	54.850***	40.283***	10.760	-44.720**	-77.013***	19.681	38.309***	21.653**
	(8.480)	(8.542)	(10.571)	(17.398)	(19.472)	(17.740)	(11.067)	(9.516)
3bank asset	1.656	0.987	-0.106	-1.707*	-2.159**	-0.015	-0.508	1.367
	(1.100)	(0.910)	(0.881)	(0.974)	(1.052)	(1.020)	(1.052)	(1.031)
Credit to GDP	1.018***	1.031***	1.123***	1.183***	1.100**	0.441	0.448	0.542
	(0.356)	(0.334)	(0.350)	(0.405)	(0.481)	(0.430)	(0.495)	(0.554)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1640	0.0834	0.0447	0.0616	0.0911	0.0488	0.0610	0.0754
Log-likelihood	-183.96	-194.03	-186.63	-171.92	-155.70	-151.64	-138.90	-126.20
LLR p-value	<0.0001	<0.0001	0.026	0.004	0.000	0.049	0.021	0.008

Results: Top ROA DEV=1 if a bank is in the ROA DEV top decile at a given period.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.158***	-7.695***	-5.338***	-2.785	-1.268	-3.644**	-3.057*	-5.589***
	(1.839)	(1.616)	(1.556)	(1.857)	(1.895)	(1.761)	(1.830)	(1.975)
Top ROA DEV	**0.168**	**0.426**	**0.295**	**0.529**	**0.723**	**0.750**	**1.064***	**1.349****
	(0.642)	**(0.535)**	**(0.612)**	**(0.652)**	**(0.679)**	**(0.654)**	**(0.605)**	**(0.620)**
Size	0.023	0.064	0.010	-0.010	-0.028	-0.019	-0.031	-0.022
	(0.083)	(0.078)	(0.080)	(0.088)	(0.096)	(0.085)	(0.087)	(0.102)
ST fund ratio	1.796	3.077***	1.335	1.347	0.360	0.648	-0.905	0.505
	(1.102)	(1.006)	(1.072)	(1.197)	(1.684)	(1.566)	(1.524)	(1.580)
Cap ratio	-21.444***	-7.212	-8.841*	-9.869*	-10.258	-14.297**	-20.981***	-15.972**
	(6.661)	(5.291)	(4.583)	(5.497)	(7.139)	(6.493)	(6.979)	(6.873)
GDP growth	-22.681***	-11.156*	7.341	15.778**	8.846	-16.339***	-5.670	21.788***
	(4.078)	(6.108)	(7.685)	(6.898)	(7.565)	(6.204)	(6.709)	(6.827)
Inflation	54.284***	39.992***	10.329	-45.559***	-77.901***	19.569	38.281***	25.456***
	(8.399)	(8.591)	(10.573)	(17.282)	(19.399)	(18.095)	(10.435)	(8.951)
3bank asset	1.754	1.089	-0.077	-1.731*	-2.233**	-0.046	-0.568	1.534
	(1.114)	(0.923)	(0.892)	(0.988)	(1.075)	(1.033)	(1.043)	(1.033)
Credit to GDP	0.989***	1.004***	1.111***	1.176***	1.112**	0.450	0.473	0.587
	(0.351)	(0.334)	(0.352)	(0.409)	(0.477)	(0.423)	(0.488)	(0.559)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1631	0.0840	0.0449	0.0634	0.0944	0.0529	0.0691	0.0883
Log-likelihood	-184.17	-193.90	-186.59	-171.58	-155.13	-150.99	-137.70	-124.44
LLR p-value	<0.0001	<0.0001	0.025	0.003	<0.0001	0.031	0.009	0.002

Results: Top ROE DEV=1 if a bank is in the ROE DEV top decile at a given period.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-8.083***	-7.727***	-5.504***	-3.686**	-2.221	-4.067**	-3.266*	-5.703***
	(1.901)	(1.646)	(1.576)	(1.820)	(1.847)	(1.639)	(1.856)	(2.003)
Top ROE DEV	**1.624*** **	**-0.003**	**0.284**	**1.165*** **	**1.041** **	**0.585**	**0.128**	**-0.830**
	(0.382)	**(0.453)**	**(0.438)**	**(0.410)**	**(0.462)**	**(0.512)**	**(0.600)**	**(1.006)**
Size	0.025	0.065	0.012	0.008	-0.012	-0.017	-0.029	-0.017
	(0.087)	(0.077)	(0.080)	(0.087)	(0.095)	(0.085)	(0.087)	(0.103)
ST fund ratio	2.000*	3.088***	1.371	1.429	0.519	0.785	-0.663	0.843
	(1.126)	(1.012)	(1.061)	(1.199)	(1.591)	(1.542)	(1.527)	(1.596)
Cap ratio	-17.451***	-5.890	-7.687*	-6.638	-6.434	-11.410**	-16.917**	-9.746
	(6.593)	(5.024)	(4.270)	(4.825)	(5.558)	(5.755)	(6.601)	(5.947)
GDP growth	-16.175***	-11.253*	7.703	17.179**	9.504	-16.750***	-5.887	22.056***
	(4.129)	(6.045)	(7.406)	(6.821)	(7.721)	(6.286)	(6.844)	(7.079)
Inflation	51.446***	39.890***	10.335	-46.092***	-76.427***	20.611	38.089***	22.740**
	(8.718)	(8.428)	(10.532)	(17.692)	(20.196)	(17.801)	(11.032)	(8.909)
3bank asset	2.253*	1.047	-0.032	-1.429	-1.843	0.163	-0.535	1.373
	(1.186)	(0.932)	(0.914)	(1.057)	(1.160)	(0.999)	(1.059)	(1.001)
Credit to GDP	0.960***	1.013***	1.124***	1.276***	1.203**	0.469	0.452	0.587
	(0.358)	(0.334)	(0.348)	(0.407)	(0.478)	(0.422)	(0.491)	(0.565)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.2058	0.0826	0.0451	0.0803	0.1052	0.0523	0.0608	0.0754
Log-likelihood	-174.77	-194.21	-186.55	-168.49	-153.29	-151.08	-138.94	-126.20
LLR p-value	<0.0001	<0.0001	0.024	0.000	<0.0001	0.034	0.021	0.008

Results: *Top ROA2%*=1 if a bank's ROA is above 2% at a given date.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.116***	-7.776***	-5.345***	-2.879	-1.090	-3.754**	-2.457	-6.013***
	(1.857)	(1.578)	(1.570)	(1.857)	(1.954)	(1.770)	(1.899)	(1.980)
Top ROA2%	**0.481**	**-0.439**	**0.220**	**0.234**	**1.279***	**0.210**	**1.730****	**0.126**
	(1.146)	**(1.063)**	**(0.757)**	**(0.766)**	**(0.738)**	**(1.169)**	**(0.743)**	**(0.827)**
Size	0.024	0.065	0.010	-0.009	-0.028	-0.017	-0.054	-0.008
	(0.084)	(0.077)	(0.080)	(0.088)	(0.096)	(0.086)	(0.093)	(0.101)
ST fund ratio	1.765	3.127***	1.330	1.402	0.111	0.778	-0.692	0.876
	(1.099)	(1.005)	(1.031)	(1.140)	(1.556)	(1.546)	(1.462)	(1.597)
Cap ratio	-21.591***	-5.304	-8.357*	-8.424	-11.239	-11.826*	-23.464***	-9.693
	(6.964)	(5.062)	(4.769)	(5.502)	(7.305)	(6.252)	(7.650)	(6.846)
GDP growth	-22.942***	-10.896*	6.959	15.513**	6.915	-16.653***	-8.158	21.953***
	(4.099)	(6.379)	(7.830)	(6.996)	(7.603)	(6.153)	(6.463)	(6.913)
Inflation	54.011***	40.015***	10.407	-44.812***	-75.850***	19.478	35.461***	23.649***
	(8.434)	(8.591)	(10.557)	(17.341)	(19.320)	(17.795)	(9.743)	(8.862)
3bank asset	1.716	1.062	-0.086	-1.711*	-2.256**	-0.077	-0.720	1.541
	(1.103)	(0.907)	(0.886)	(0.978)	(1.066)	(1.016)	(1.066)	(1.011)
Credit to GDP	0.991***	1.014***	1.110***	1.171***	1.046**	0.447	0.432	0.585
	(0.351)	(0.334)	(0.347)	(0.404)	(0.470)	(0.422)	(0.454)	(0.560)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1633	0.0830	0.0445	0.0617	0.0981	0.0488	0.0785	0.0724
Log-likelihood	-184.12	-194.11	-186.67	-171.89	-154.50	-151.64	-136.31	-126.60
LLR p-value	<0.0001	<0.0001	0.026	0.004	<0.0001	0.049	0.003	0.011

Results: *Top ROE10%*=1 if a bank's ROE is above 10% at a given date.

	Financial distress (dummy variable)							
# lags of explanatory variables	Lag1	Lag2	Lag3	Lag4	Lag5	Lag6	Lag7	Lag8
Intercept	-7.196***	-7.695***	-5.394***	-2.928	-1.498	-3.722**	-3.201*	-6.046***
	(1.818)	(1.599)	(1.552)	(1.847)	(1.865)	(1.754)	(1.839)	(1.952)
Top ROE10%	**-0.135**	**0.168**	**-0.034**	**0.218**	**0.484**	**0.539**	**0.175**	**0.037**
	(0.382)	**(0.356)**	**(0.345)**	**(0.332)**	**(0.317)**	**(0.357)**	**(0.400)**	**(0.418)**
Size	0.027	0.062	0.011	-0.014	-0.035	-0.024	-0.033	-0.007
	(0.081)	(0.077)	(0.079)	(0.087)	(0.096)	(0.087)	(0.086)	(0.100)
ST fund ratio	1.791	3.089***	1.378	1.377	0.313	0.650	-0.703	0.875
	(1.096)	(1.010)	(1.052)	(1.175)	(1.671)	(1.564)	(1.527)	(1.542)
Cap ratio	-21.159***	-5.789	-7.894*	-7.857	-7.239	-11.158*	-16.712**	-9.229
	(6.656)	(4.973)	(4.327)	(5.113)	(5.950)	(6.019)	(6.775)	(5.943)
GDP growth	-22.103***	-12.241*	7.538	14.314**	5.781	-18.725***	-6.643	21.999***
	(4.639)	(6.507)	(8.078)	(6.907)	(7.327)	(5.677)	(6.748)	(7.196)
Inflation	54.548***	39.750***	10.445	-44.120**	-74.788***	18.543	37.338***	23.491***
	(8.256)	(8.490)	(10.629)	(17.464)	(19.659)	(17.823)	(11.132)	(8.947)
3bank asset	1.813	0.940	-0.068	-1.750*	-2.262**	-0.392	-0.648	1.524
	(1.154)	(0.960)	(0.920)	(0.976)	(1.048)	(1.041)	(1.053)	(0.988)
Credit to GDP	0.983***	1.019***	1.116***	1.168***	1.059**	0.468	0.450	0.584
	(0.354)	(0.331)	(0.351)	(0.404)	(0.473)	(0.419)	(0.492)	(0.560)
# obs.	2662	2408	2169	1943	1737	1538	1363	1195
Pseudo-R^2	0.1632	0.0831	0.0443	0.0625	0.0955	0.0547	0.0613	0.0724
Log-likelihood	-184.14	-194.10	-186.70	-171.76	-154.95	-150.71	-138.86	-126.60
LLR p-value	<0.0001	<0.0001	0.027	0.003	<0.0001	0.026	0.020	0.011

Conclusion

- We address the issue of the impact of high profitability on the occurrence of bank distress in Europe.
- We use several indicators of high profitability to test their impact on bank vulnerability in logit models estimated on a hand-collected dataset of bank distresses in Europe.

- Two main conclusions:
- 1. **No evidence that high profitability is associated with lower occurrence of bank distress.**
- 2. **Limited evidence that high profitability leads to greater occurrence of bank distress.**

Implications

- Positive implications: we contribute to explain the puzzle observed during the financial crisis of distressed banks which were characterized by high profits before the crisis.
- Normative implications:
  - authorities should not consider high profitability to be associated with better bank stability as a general rule.
  - high profitability indicators could be added to early-warning models.
- Further research should be done to analyze whether high levels in all CAMELS components can be associated with lower occurrence of bank distress.