3rd EBA Policy Research Workshop

The credibility of European banks' risk-weighted capital: structural differences or national segmentations?

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Outline of this talk

- Background
- Related literature
- Sample and key variables
- Results
  - Why do risk weights differ across banks?
  - Why do some banks use internal models more?
  - Do investors believe in Basel's risk weights?
- Final remarks

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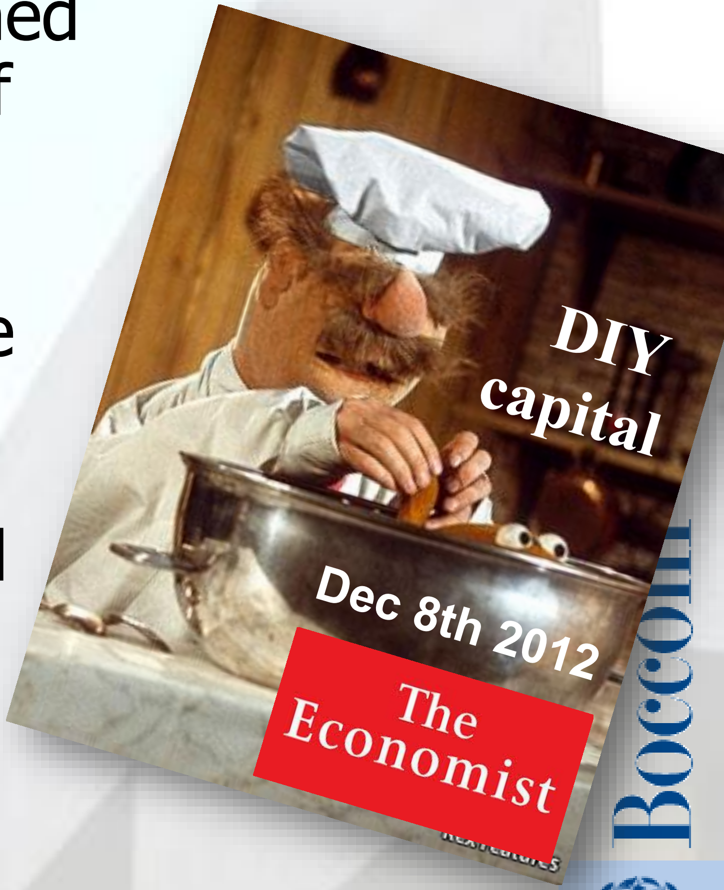
Background:
Wide distrust of banks' RWs

- Market participants have questioned the reliability and comparability of RWs, and focused on "adjusted" capital ratios
- Regulators have endorsed the use of "plain", un-weighted capital ratios as a backstop against the opportunistic use of risk-weighted measures
- National supervisors have sometimes introduced «floors» to risk-weights for specific portfolios



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Related literature

- Practitioners and supervisors
  - e.g. BIS 2013; EBA 2013: RWAs show considerable differences both cross banks and cross countries
- Academic literature
  - Vallascas and Hagendorff (2013), show that risk-weights are ill-calibrated to a market measure of bank portfolio risk (i.e., bank asset volatility)
  - Mariathasan and Merrouche (2013) find that average risk-weights decrease once internal models gain regulatory approval, and this is especially true for capital-constrained banks

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Sample selection

- Source of data
  - Statements
  - Pillar 3 Reports
    - Compulsory, but not standardised
- 17 countries: EU, Norway and Switzerland
- 50 largest banks by total assets in 2012
  - 48 are listed
  - 49 adopt IFRS
- Balanced panel over 2008-2012

Belgium	2
Denmark	2
Finland	1
France	5
Germany	3
Greece	4
Hungary	1
Ireland	2
Italy	8
Netherlands	2
Norway	1
Poland	1
Portugal	2
Spain	5
Sweden	4
Switzerland	2
United Kingdom	5
All	50

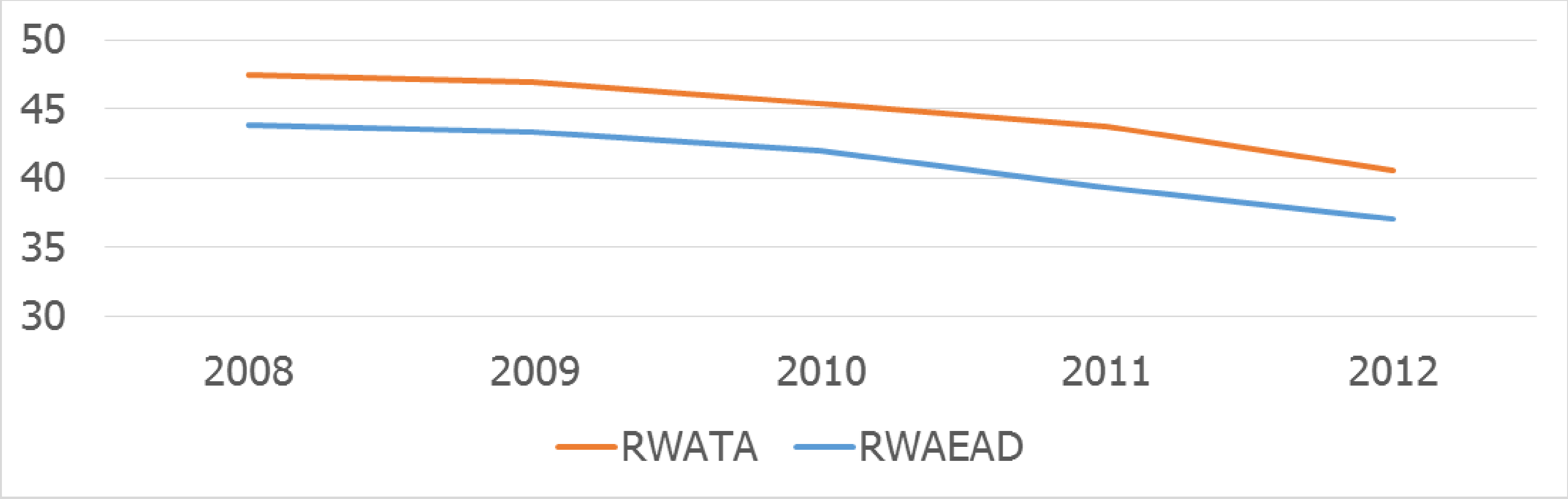
RW-related variables

$$RWATA = \frac{Total\ RWA}{Total\ Assets}$$

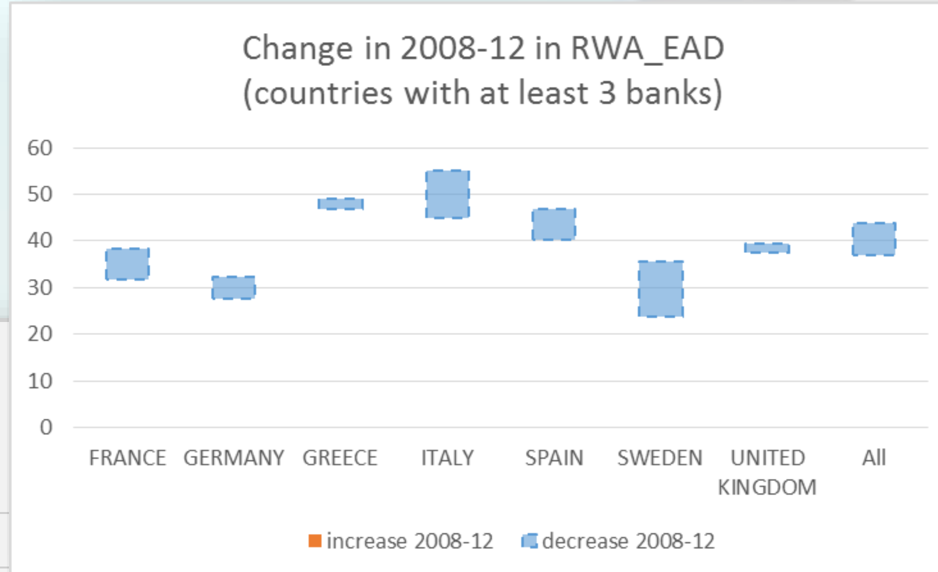
Widely used, includes all risks, excludes OBS items

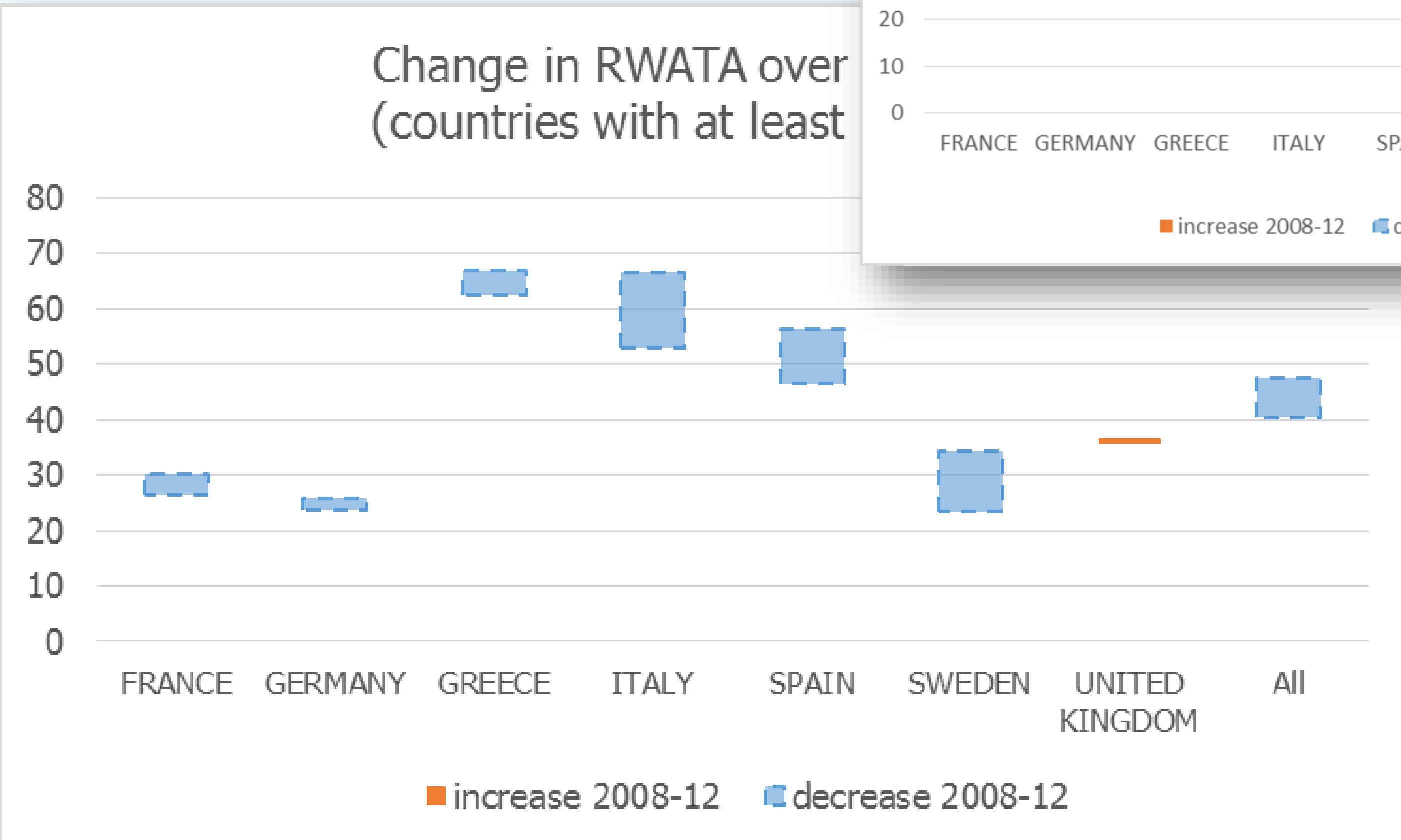
$$RWAEAD = \frac{RWA\ for\ Credit\ Risk}{EAD\ for\ the\ Credit\ Portfolio}$$

Requires Pillar 3 data, focuses on credit risk, includes OBS items



Cross-country differences and dynamics





Main explanatory variables

Business models

Name	Description
SIZE	Natural log of total assets
DEPOSITS	Customer deposits / total assets
LOANS	Loans / total assets
CORPORATE	Corporate loans / total loans
RETAIL	Retail loans / total loans
ROA	Return on assets (winsorised)

Economic+ supervisory

GDP_GROWTH	Annual real growth in national GDP
BANKCONC	Share of top 3 banks on total assets
BANKONGDP	Bank total assets on GDP

Risk models

STANDARD	Loans under standardised approach / total loans
IRB_LOANS	Loans under internal ratings-based approach / total loans
HIGH_RETCORP_IRB	Dummy for heavy users of internal ratings-based models

Risk and capital

CDSSPREAD	CDS spread
WACC	Weighted average cost of capital
ASSETVOL	Asset volatility
ZSCORE	Z-score (measure of credit risk)
IMPAIRED_LOANS	Impaired loans / total loans
TIER1	Tier 1 capital / risk-weighted assets

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Univariate analysis / 1

Business models							Correlation with	
	Mean	Median	Max	Min	Sigma	Obs	RWATA	RWAEAD
SIZE	12.5	12.5	14.7	10.3	1.3	250	-65.4%***	-52.5%***
DEPOSITS	48.6	48.7	94.7	4	15.2	250	45.3%***	37.5%***
LOANS	53.9	59.3	81.7	12.2	17.8	250	74.4%***	57.6%***
RETAIL	30.3	31.4	11.9	0.0	58.8	250	25.2%***	16.7%***
CORPORATE	35.8	36.1	9.5	6.3	54.9	250	2.30%	6.60%
INSTITUTIONS	12.2	10.0	9.4	0.9	48.2	250	-30.5%***	-28.6***
GOVERNMENTS	12.0	11.9	6.0	0.0	28.6	250	-18.7%***	-17.6%***
ROA	0.1	0.3	0.6	-1.6	0.9	250	-0.4%	-0.2%

Banks showing higher risk weights are
smaller, more involved in the traditional loans/deposits business,
more exposed to retail portfolios
(as opposed to governments and financial institutions)

Univariate analysis / 2

Risk models							Correlation with	
	Mean	Median	Max	Min	Sigma	Obs	RWATA	RWAEAD
STANDARD_LOANS	45	37.3	100	1.9	30.6	250	74.2%***	69.6%***
IRB_LOANS	55	62.7	98.1	0	30.6	250	-74.2%***	-69.6%***
FIRB_LOANS	10.5	0	92	0	18.1	250	-9.90%	-12.0%*
AIRB_LOANS	43.5	47.7	98.1	0	30.7	250	-67.1%***	-61.0%***

Banks showing lower risk weights are
heavy users of IRB models, especially advanced ones

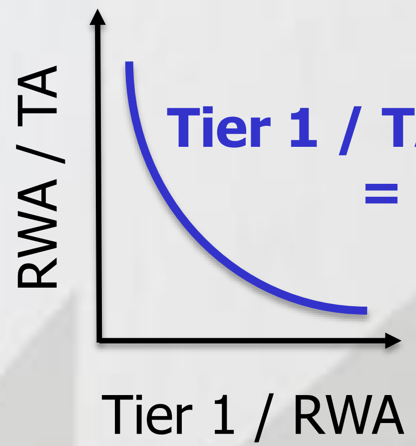
Expected and consistent with the incentives set by Basel II

Univariate analysis / 3

(IV) - Capital and risk							Correlation with	
	Mean	Median	Max	Min	Sigma	Obs	RWATA	RWAEAD
VOLATILITY	3.4	3.1	10.3	1	1.5	240	1.60%	5.90%
CDSSPREAD	274.0	146.1	353.2	28.7	1999.4	218	34.8%***	25.0%***
WACC	6.4	5.6	3.1	2.9	21.2	250	41.1%***	32.4%***
IMPAIRED_LOANS	5.8	4.4	32.6	0.4	5.3	250	33.8%***	30.1%***
ASSET_VOL	15.8	10.1	172.1	1.6	20.8	277	14.1%**	12.6%*
Z_SCORE	2.5	2.4	12.4	-1.5	2.1	286	-18.7%***	-24.4%***
TIER1	11	10.8	21.3	-6.7	3.5	250	-55.5%***	-55.2%***

Risk-weight based indicators are not inconsistent with most market-based risk measures (CDS, WACC, ASSETVOL, ZSCORE) and the banks' actual bad loans experience (impairment ratio).

A negative link with risk-weighted capital suggests that investors/supervisors look at un-weighted leverage, too.



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Multivariate results: “Why do RWs differ across banks?”

“odds ratio”

x_OR = ln[x/(1-x)]

	RWATA_OR		RWAEAD_OR	
Variable	Coef	Std. Coef.	Coef	Std. Coef.
Constant	0.920			
SIZE	-0.184***	-0.234		
DEPOSITS	0.009**	0.130		
LOANS	0.017***	0.298		
CORPORATE	0.014***	0.129		
HIGH_RETCORP_IRB	-0.329**	-0.165		
TIER1_RWA	-0.048***	-0.169		
GDP_GROWTH	0.021*	0.061		
GDP_GROWTH× HIGH_RETCORP_IRB	-0.026*	-0.053		
France	0.012			
Germany	-0.141			
Greece	0.157			
Italy	0.146			
Spain	0.016			
Sweden	-0.372***		-0.203*	
UK	0.313**		0.331***	
Adj. R-square	0.833		0.671	

Higher RWs for small banks, strongly geared towards loans and traditional portfolios

Low RWs for heavy IRB users and well-capitalised banks

GDP slowdowns cause shift to conservative assets (eg Treasuries) but increase default rates for IRB users

National segmentations, especially outside SSM

Andrea Resti, 2014

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Multivariate results: "Why do some banks use IRB more?"

Large, well capitalised banks use IRB more

	(I) IRB_LOANS_OR		(II) IRB_LOANS_OR		(III) IRB_LOANS_OR		(IV) IRB_LOANS_OR	
	Coef	Std. Coef.	Coef	Std. Coef.	Coef	Std. Coef.	Coef	Std. Coef.
Constant	-7.03***		-6.42***		-10.27***		-10.92***	
SIZE	0.542***	0.689	0.617***	0.784	0.519***	0.659	0.559***	0.710
DEPOSITS	-0.025**	-0.375	-0.023**	-0.349	-0.011	-0.164	-0.011	-0.167
LOANS	-0.021	-0.380	-0.018	-0.316	-0.005	-0.087	-0.007	-0.124
CORPORATE	0.009	0.083	0.013	0.119	0.006	0.061	0.004	0.039
RETAIL	0.029**	0.344	0.015	0.180	0.005	0.061	0.008	0.092
TIER1_RWA	0.144***	0.508	0.057*	0.200	0.050	0.175	0.050*	0.175
France	-		-1.024**		0.362		-	
Germany			-1.240***		-0.235		-	
Greece			-1.045		-0.231			
Italy			-1.759***		-0.379			
Spain			-0.256		0.388			
Sweden			0.260		0.052			
UK	-		-0.446		0.133			
BANKCONC	-		-		0.039**	0.527	0.042***	0.573
BANKONGDP	-		-		0.257***	0.485	0.267***	0.503
Adj. R-SQ	0.577		0.685		0.721		0.712	

…but national supervisory practices do matter…

…which in turn are driven by the banking industry's lobbying power

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Multivariate results: “Do investors believe in Basel’s RWs?”

RWs affect market-based measures of risk

Traditional lending businesses are perceived as less risky

Accounting measures of risk and return do matter

Time and country dummies are significant

	WACC	WACC	CDSSpread	CDSSpread	Asset Vol	Asset Vol	Z-Score	Z-Score
Constant						0.385***	5.739**	5.649**
RWATA	0.058***	0.057***	4.283**	4.838***	0.006**	0.006***	-0.002	-
RWAEAD_O	0.021	-	3.229*	-	-0.002	-	-0.051***	-
SIZE	0.044	-	11.168	-	0.006	-	-0.301**	-0.239*
DEPOSITS	0.023*	0.034***	-1.655	-	0.001	-	0.013	-
LOANS	[illegible]							-0.021*
CORPORATE	-0.059***	-0.056***	-3.476***	-3.199**	-0.006*	-0.005**	0.009	-
RETAIL	-0.025**	-0.033***	-1.480	-	-0.001	-	0.031***	0.031***
EQUITY_RATIO	0.165*	-						-
IMPAIRED_LOANS	0.088***	0.103***	1.339	-	0.021***	0.023***	-0.043	-
ROA	-1.268***	-1.031***	-157.70***	-154.97***	-0.023	-	0.647***	0.971***
GDP_GROWTH	-0.443***	-0.405***	-54.415***	-53.869***	0.013	0.014**	0.001	-
Adj. R2	0.790	0.783	0.846					
F on countries	13.69***	26.31***	24.37***	70.94***	2.05*	2.55**	9.38***	22.30***
F on years	17.10***	15.79***	14.69***	21.47***	18.74***	15.93***	19.88***	22.85***

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Final remarks

- Risk weights are affected by the banks' size, business model and asset mix
- The adoption of internal ratings based (IRB) approaches is (as expected) a powerful driver of bank risk-weighted assets
- Lower risk weights are positively linked to the banks' capital cushion
- IRB adoption is more widespread in countries where supervisory capture is potentially stronger
- Regulatory risk weights are not disconnected from market-based measures of bank risk

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