European Banking Federation

16th Annual Capital Adequacy and Allocation

(Organised by Marcus Evans)

London, 10-12 September 2012

AN IN-DEPTH LOOK AT RISK WEIGHTED ASSETS

Gonzalo GASÓS (EBF Senior Adviser)

An in-depth look at RWAs

Regarding the risk weighted assets (RWA):

- Why so much talking about RWA?
- Topical questions
- The broader picture
- Background
- EU vs US: Difference? What difference?
- EBF study on retail mortgages: Findings

European Banking Federation

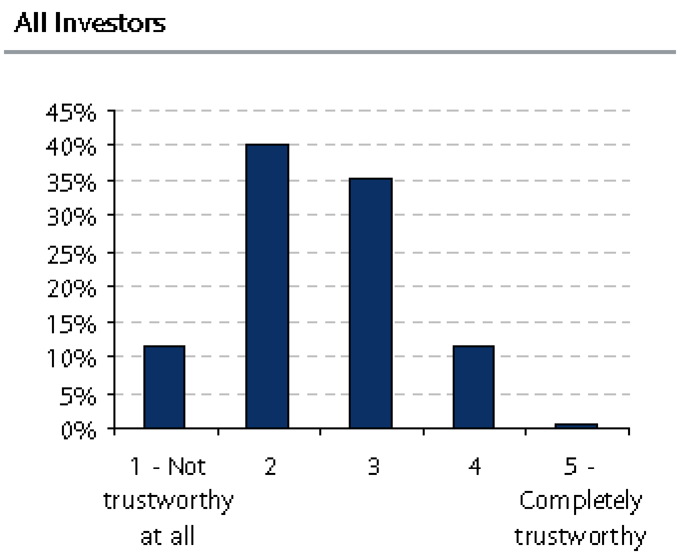
- Set up in 1960, the **European Banking Federation** is the voice of the European banking sector (European Union & European Free Trade Association countries).
- The EBF represents the interests of some 4,500 European banks: large and small, wholesale and retail, local and cross-border financial institutions.
- EBF contribution to the economy:
  - €37.7 trillion assets
  - 80% of bank loans (EU)
  - 2.5 million employees
  - 17% of total corporate income tax
- The EBF is committed to supporting EU policies to promote the single market in financial services in general and in banking activities in particular. It advocates free and fair competition in the EU and world markets and supports the banks' efforts to increase their efficiency and competitiveness.

Why so much talking about RWA?

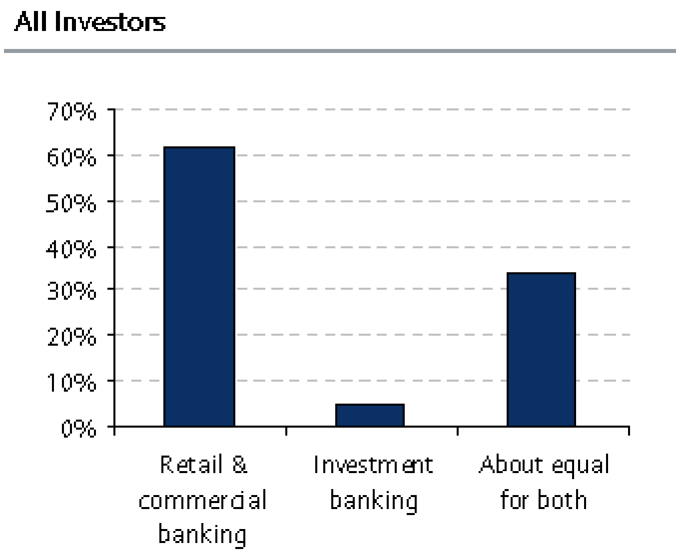
- A matter of trust
- Level playing field
- Complexity of RWA calculation
- Supervision

RWA: A matter of trust

HOW MUCH DO YOU TRUST RISK WEIGHTINGS?



DO YOU VIEW RWs MORE TRUSTWORTHY FOR… ?

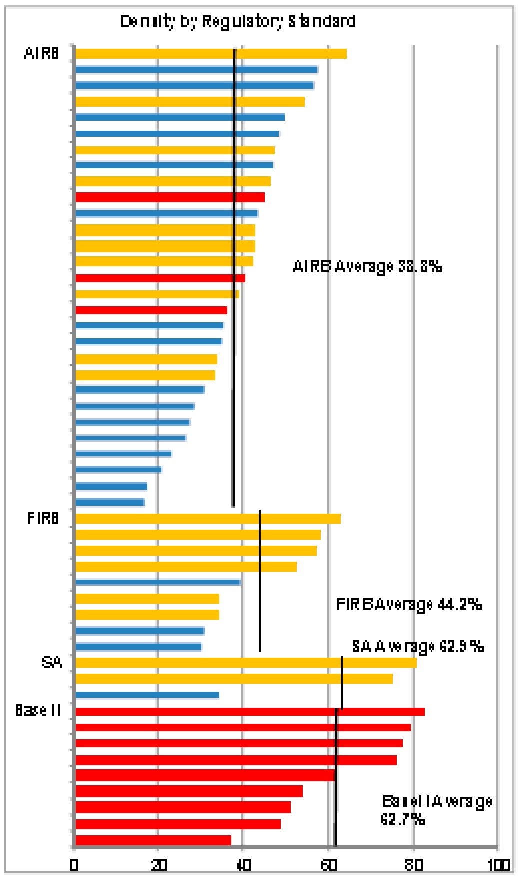


Source: Barclays Research

European
Banking
Federation

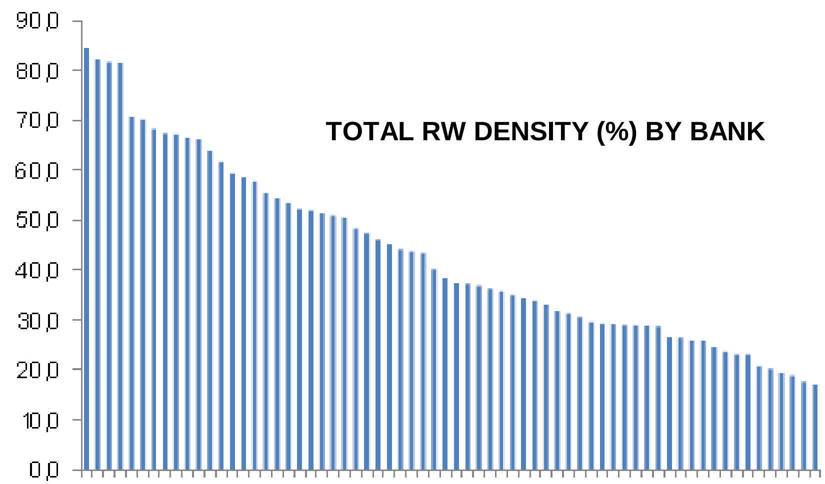
An in-depth look at RWAs

RWA: Level playing field



Sources: IMF, EBF, Pillar 3 reports

✓ **Straight comparison could be misleading**

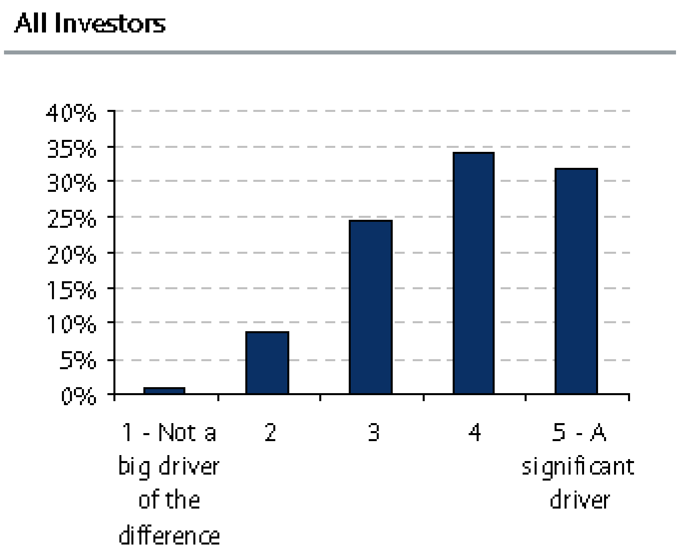


European Banking Federation

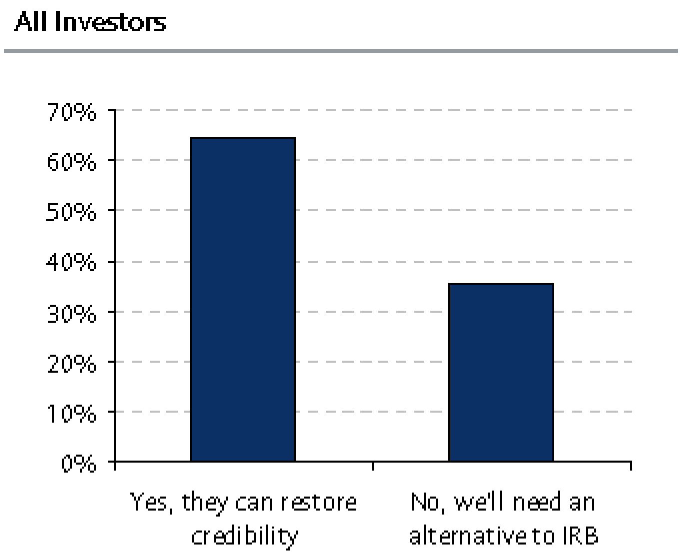
An in-depth look at RWAs

RWA: Supervision

MAJOR DIFFERENCES REFLECT THE WAY NATIONAL REGULATORS APPLY THEIR RULES?



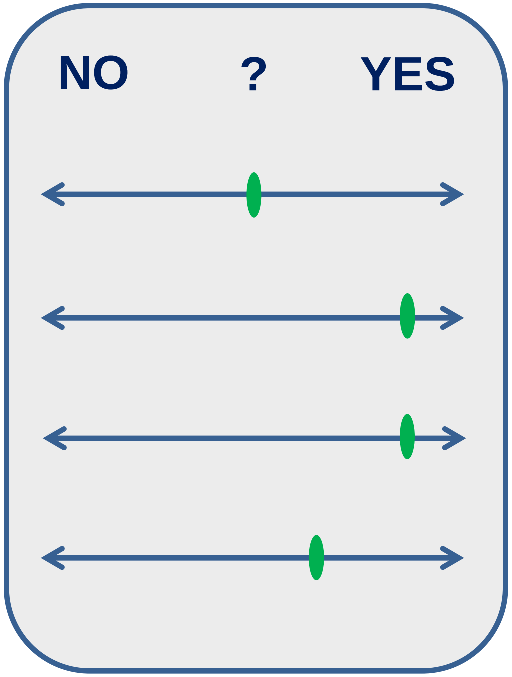
CAN REGULATORS RESTORE CREDIBILITY IN IRB?



Source: Barclays Research

TOPICAL QUESTIONS

General perception



Are regulatory IRB models sound at large ?

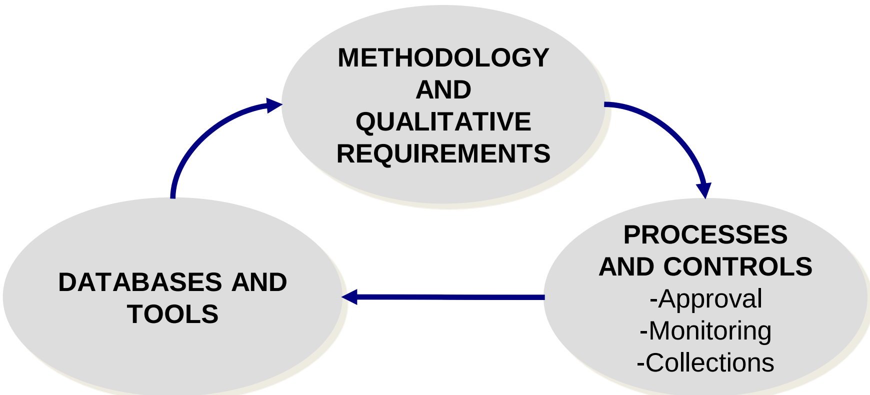
Are banks reducing RWAs ?

Are EU overall RWs more lenient than US RWs ?

Are there differences in IRB models ?

THE BROADER PICTURE

The term "rating system" comprises all of the methods, processes, controls, and data collection and IT systems that support the assessment of credit risk, the assignment of internal risk ratings, and the quantification of default and loss estimates. (*)



(*) BIS: International Convergence of Capital Measures and Capital Standards

THE BROADER PICTURE

1 RATING SYSTEM AND APPLICATION SCORING

2 BEHAVIOURAL SCORING

3 HISTORICAL INFORMATION OF DEFAULTS AND COLLECTIONS

4 CALIBRATION PROCESS AND PARAMETERS ESTIMATION

PD - EAD - LGD

GUARANTEES

5 RISK WEIGHTED ASSETS AND CAPITAL REQUIREMENTS

6 BUSINESS INTEGRATION GOVERNANCE DECISION TAKING

SUPERVISORY AUTHORISATION

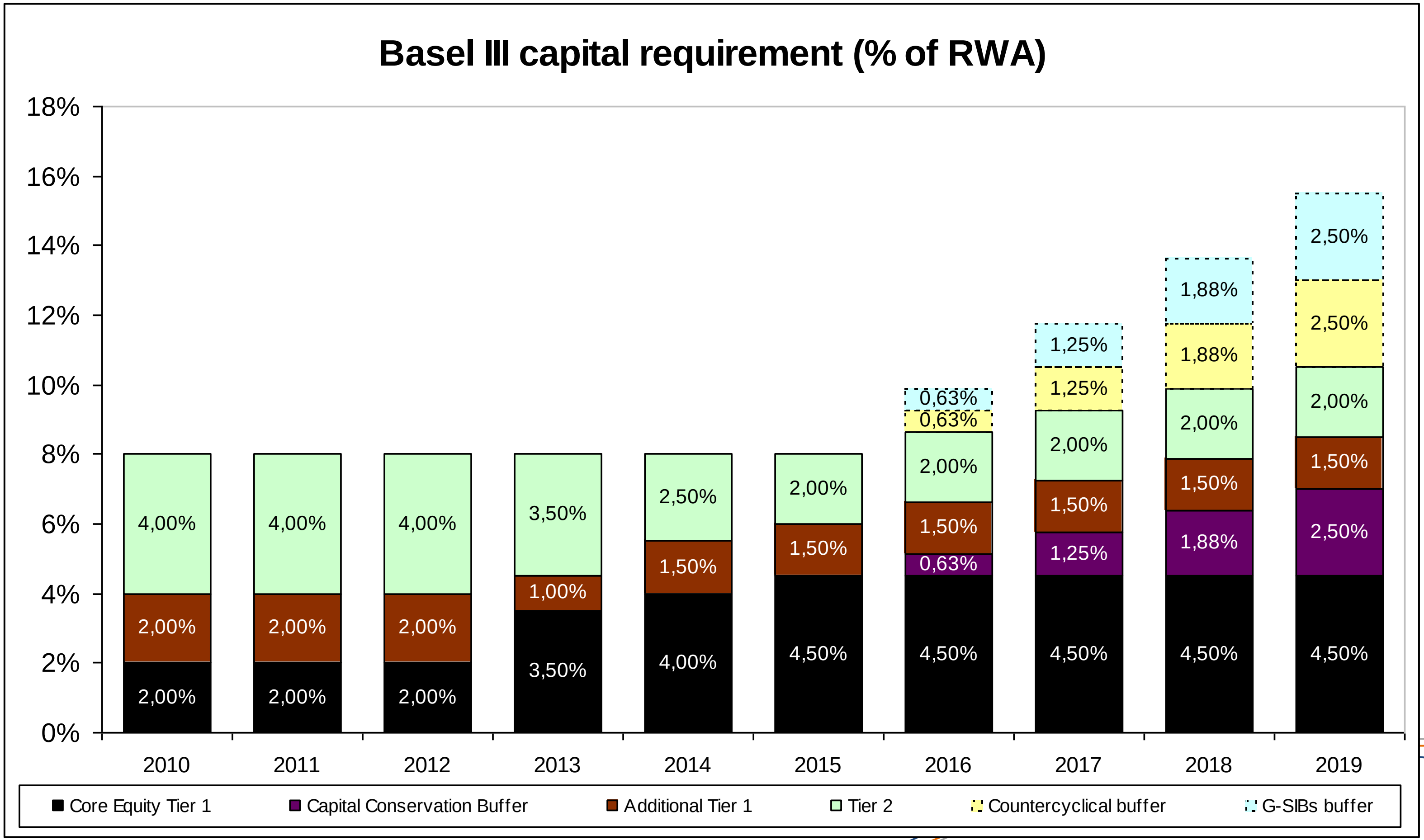
BACKGROUND - Stricter definition of capital

$$\frac{\text{Total Capital (Tier 1 + Tier 2)}}{\text{Risk-weighted Assets}} \geq 8\%$$

$$\frac{\text{Common Equity Tier 1}}{\text{Risk-weighted Assets}} \geq 4.5\%$$

$$\frac{\text{Tier 1 Capital}}{\text{Risk-weighted Assets}} \geq 6\%$$

BACKGROUND - Enhanced capital requirements



BACKGROUND - Deductions from capital

Table 4

Capital impact of new definition of capital, in percent

	Number of banks	Change in RWA*	Change in CET1 capital**	Change in Tier 1 capital	Change in total capital
Group 1	87	7.3	-41.3	-30.2	-26.8
Group 2	136	3.2	-24.7	-14.1	-16.6

* Change in current overall risk-weighted assets as a result of proposed changes to the definition of capital, ie from applying a risk-weighting treatment to exposures currently being deducted from capital or vice versa. All changes in risk-weighted assets unrelated to the definition of capital are not considered. ** The column "Change in CET1 capital" compares gross CET1 capital (without deductions) with net CET1 capital.

Source: BIS Basel III monitoring exercise (December 2010)

BACKGROUND - Deductions from capital

Table 5

CET1 deductions and minority interest as a percentage of new CET1 capital gross of deductions

	Number of banks	Goodwill	Intangibles	Financials	DTA	MSRs	Excess above 15%	Other*	Total	Minority interest**
Group 1	87	-19.0	-4.6	-4.3	-7.0	-0.4	-2.4	-3.6	-41.3	-2.0
Group 2	136	-9.4	-2.3	-5.5	-2.8	0.0	-1.0	-3.7	-24.7	-2.1

* Other includes deductions related to investments in own shares, shortfall of provision to expected losses, cash flow hedge reserve, cumulative changes in own credit risk, pension fund assets, securitisation gains on sale and deductions from additional Tier 1 capital to the extent they exceed a bank's additional Tier 1 capital and, therefore, have to be taken from CET1 capital. ** Minority interest is not included in CET1 capital gross of deductions and the total deductions.

Source: BIS Basel III monitoring exercise (December 2010)

BACKGROUND - Basel 2.5 and CCP in Basel 3

- Basel 2.5:
  - **Stressed value at risk**
  - **Incremental risk charge**
  - **Securitisation positions in the trading book**
- Review of counterparty credit risk in Basel 3.
- As a result of these revisions, market risk capital requirements will increase by an estimated average of 3 to 4 times for large internationally active banks.
- Basel 2.5 alone has meant an increase of 6.1% in the overall capital requirement of European banks (the capital requirement for market risk roughly doubled).

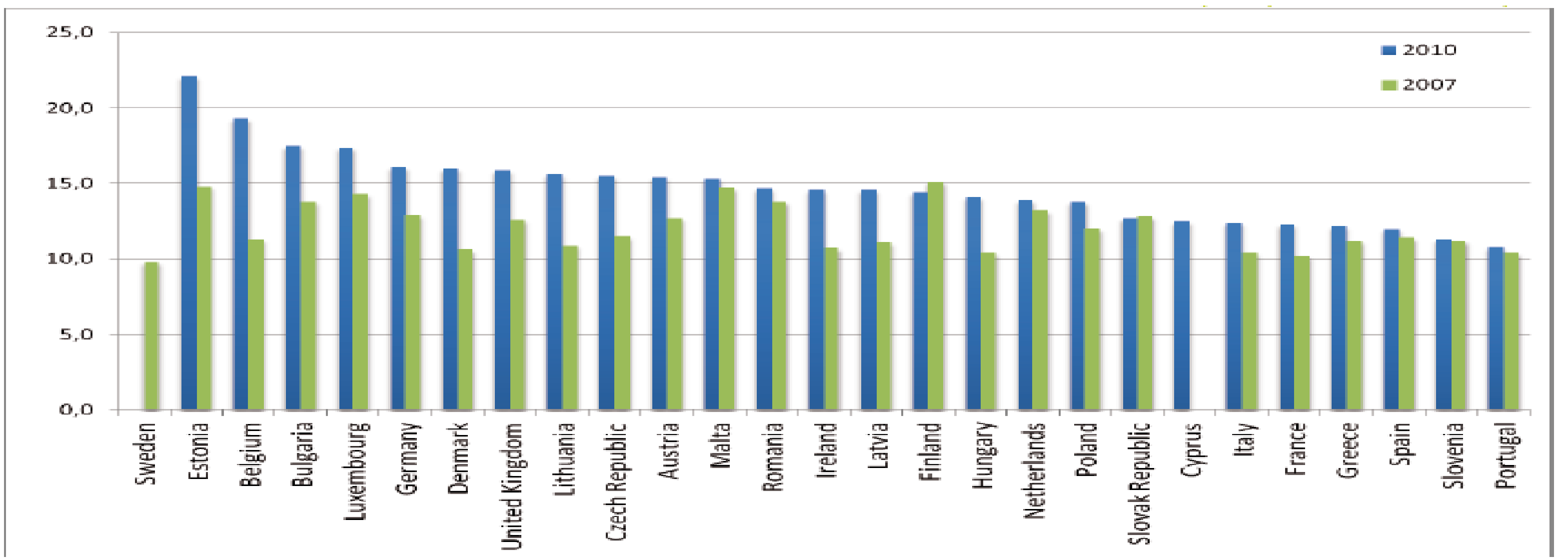
BACKGROUND – Adjusting to safer regulation

REGULATORY TARGETS → **PRIORITY WAYS TO COMPLY** → **IF NOT ENOUGH**

REGULATORY TARGETS	PRIORITY WAYS TO COMPLY	IF NOT ENOUGH
To achieve: more capital, higher quality, buffers, etc.	Retained profits	Cut lending?
	Issue new equity	Cut RWAs by reallocating exposures?
To comply with: liquidity ratios	Shift to liquid assets	
	Longer term funding	

BACKGROUND – Adjusting to safer regulation

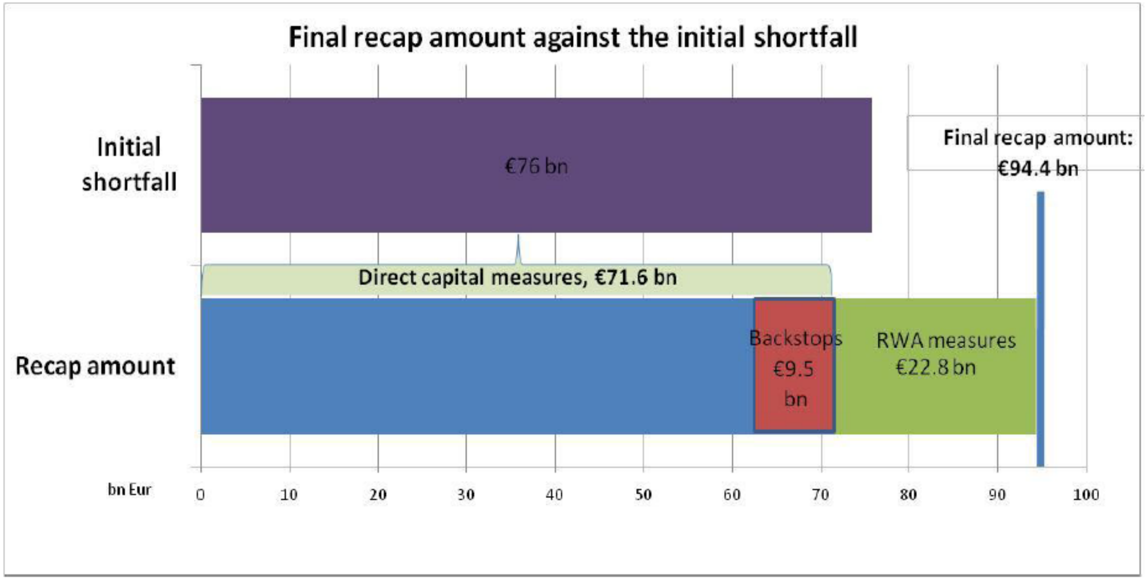
- Markets put pressure on European banks to advance the implementation of Basel III:
- Tier 1 capital rose from 7.7% (2007) to **10.4% (2010)**



Source: IMF (Financial Soundness Indicators, April 2012)

BACKGROUND – EBA recapitalisation exercise

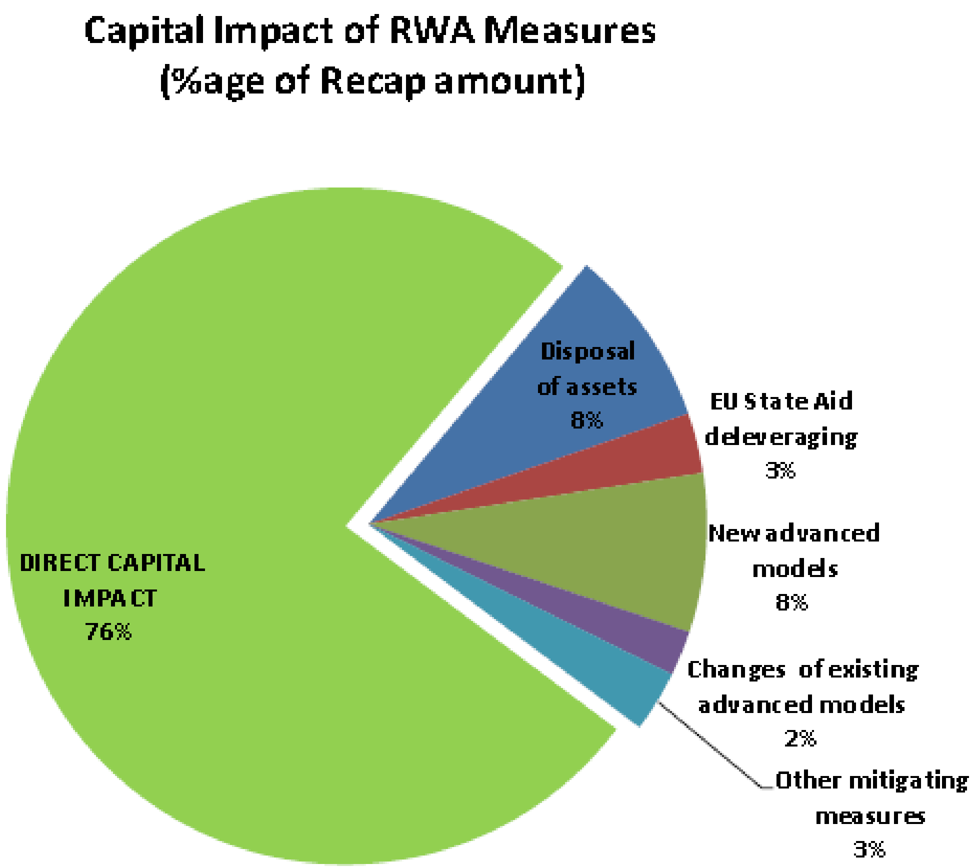
The increase in eligible own funds through the implementation of capital measures represents 76% of the total recap amount while the release of capital through the execution of RWA measures amounting to 24%.



Source: EBA

An in-depth look at RWAs

BACKGROUND – EBA recapitalisation exercise

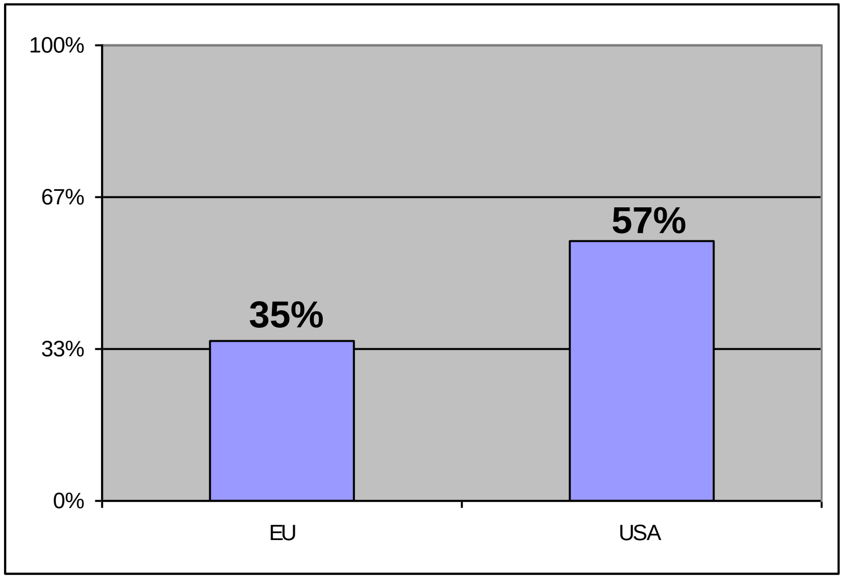


✓ **Right incentives**

Source: EBA

EU vs US: Difference? What difference?

2010 RWA in percentage of 'total assets' in Europe and the US



US banks exhibit higher density of risk weighted assets (57%) than their European peers (35%)

Source: IMF, Pillar 3 reports

EU vs US: Difference? What difference?

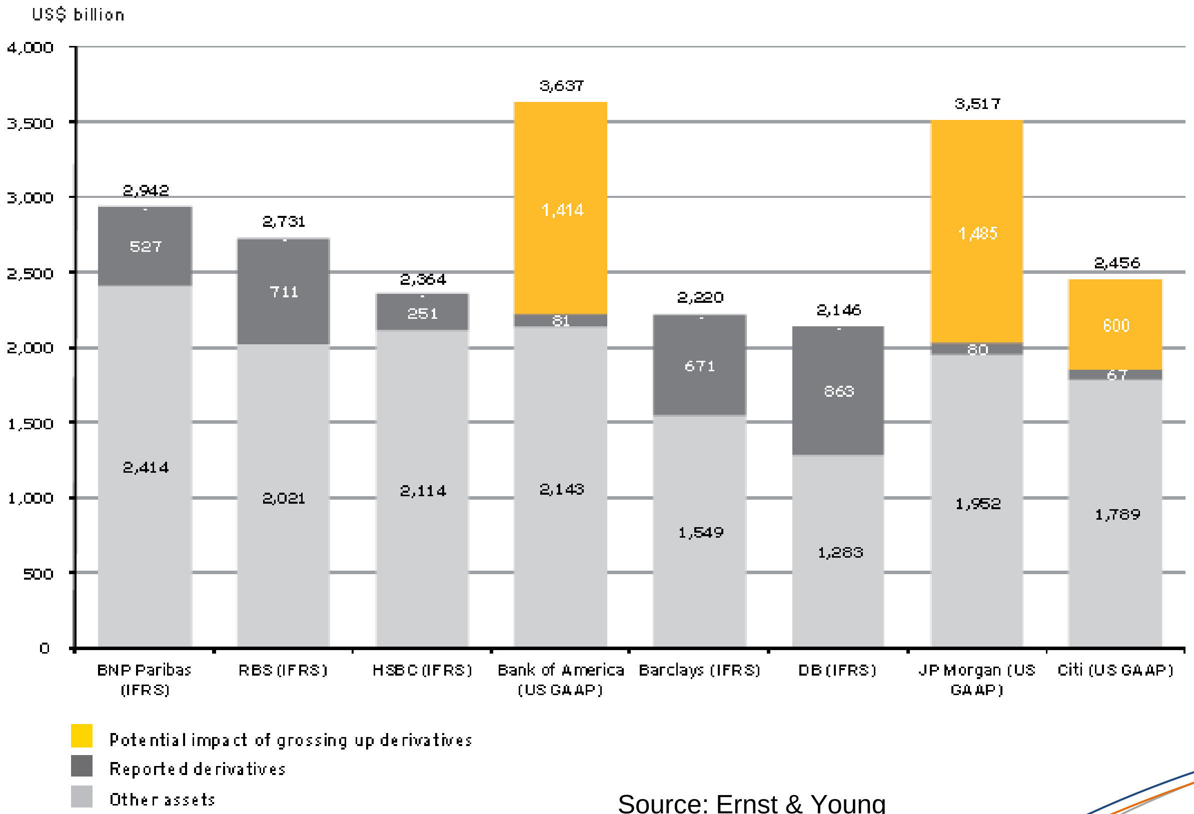
FACTORS	IMPACT ON RW DENSITY
1. Netting rules in accounting standards:	21% (sample: 3 banks)
2. Mortgages in or out of RWA calculations:	2.5%
3. Disclosure of operational risk:	3.7%
4. Risk mitigation techniques:	More than 2.4%
5. Basel 1 floor:	0.75%
6. Deduction of software:	0.60%
7. Insurance schemes in residential mortgages:	Varying degrees
8. Shift to less risky assets:	At least 3.2%
9. Pillar 2 capital requirements:	Around 6.5%
10. Other features:	Additional capital

European Banking Federation

An in-depth look at RWAs

EU vs US: Difference? What difference?

Reported gross assets and the effect of offsetting derivative contracts for selected banks in 2009



Source: Ernst & Young

Reported assets are much lower (*) according to US GAAP thus the ratio of RWA/Assets is not comparable

(*) 36% lower for the banks in the E&Y sample

EU vs US: Difference? What difference?

Table No. 1:
Reported gross assets and the effect of offsetting derivative contracts for selected banks in 2009

US$ billion	Potential Impact of Grossing Up	Reported Derivatives	Other Assets	Total Assets
BNP Paribas (IFRS)		527	2,415	2,942
RBS (IFRS)		711	2,021	2,732
HSBC (IFRS)		251	2,114	2,365
Barclays (IFRS)		671	1,549	2,220
DB (IFRS)		863	1,283	2,146
JP Morgan (U.S. GAAP)	1,485	80	1,952	2,032
Citi (U.S. GAAP)	600	67	1,789	1,856
BoA (U.S. GAAP)	1,414	81	2,143	2,224

Source: ISDA

EU vs US: Difference? What difference?

Table 8
Total Credit Market Instruments Held in Financial Sector

	Dec-09		Change since (%saar)	
	$ billion	% of total	Dec-08	Dec-06
Commercial banks	9.005	23.6	-4.5	3.8
Federal Reserve	1.988	5.2	101.6	36.7
Savings banks and credit unions	1.804	4.7	-10.6	-5.8
Insurance companies	3.883	10.2	4.3	2.4
Pension funds (public and private)	1.939	5.1	0.8	5.1
Money market funds	2.031	5.3	-24.1	9.2
Mutual & closed end funds & ETFs	2.896	7.6	17.5	10.9
GSE and GSE-backed pools	8.087	21.2	1.2	8.0
ABS issuers	3.333	8.7	-16.7	-6.5
Finance companies	1.550	4.1	-11.8	-5.1
Real estate investment trusts	0.172	0.5	-4.7	-13.5
Brokers and dealers	0.530	1.4	-26.2	-3.2
Funding corporations	0.875	2.3	-14.6	34.8
Total	38.092		-2.0	4.4
Memo: Excluding banks and Fed	27.100	71.1	-4.8	3.2

Source: Federal Reserve

US: Transfer of mortgages to GSEs.

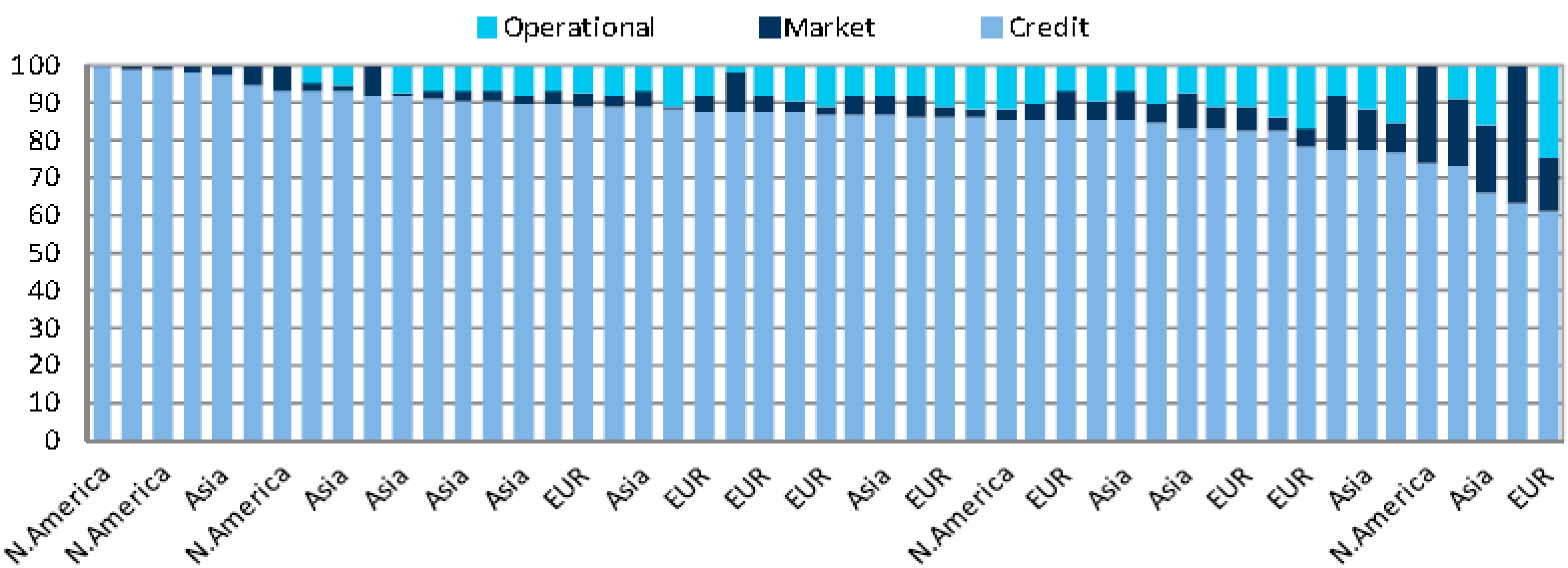
EU: The majority of mortgages remain on the balance sheet thus pulling down the overall risk weight density (by around 2.5%).

European
Banking
Federation

An in-depth look at RWAs

EU vs US: Difference? What difference?

Breakdown of RWA by Credit, Market and Operational risks (in %) in individual selected banks



Operational risk, not reported in the US, amounts to 9.5% of EU total RWAs, representing an increase of 3.7% in the RW density.

Sources: IMF, The Banker, EBF, Pillar 3 reports, Financial statements of individual banks

EU vs US: Difference? What difference?

- Basel II has allowed credit risk mitigation (CRM) in the calculation of regulatory capital requirements.
- Point of reference: In the corporate lending segment, a large foreign commercial bank reports 37% reduction of exposure post-CRM.
- CRM have a fair effect on risk management and poses the right incentive to regulatory capital planning.
- EU banks’ exposure to corporate lending could mean around 2.4% reduced total assets in the RW density calculation.

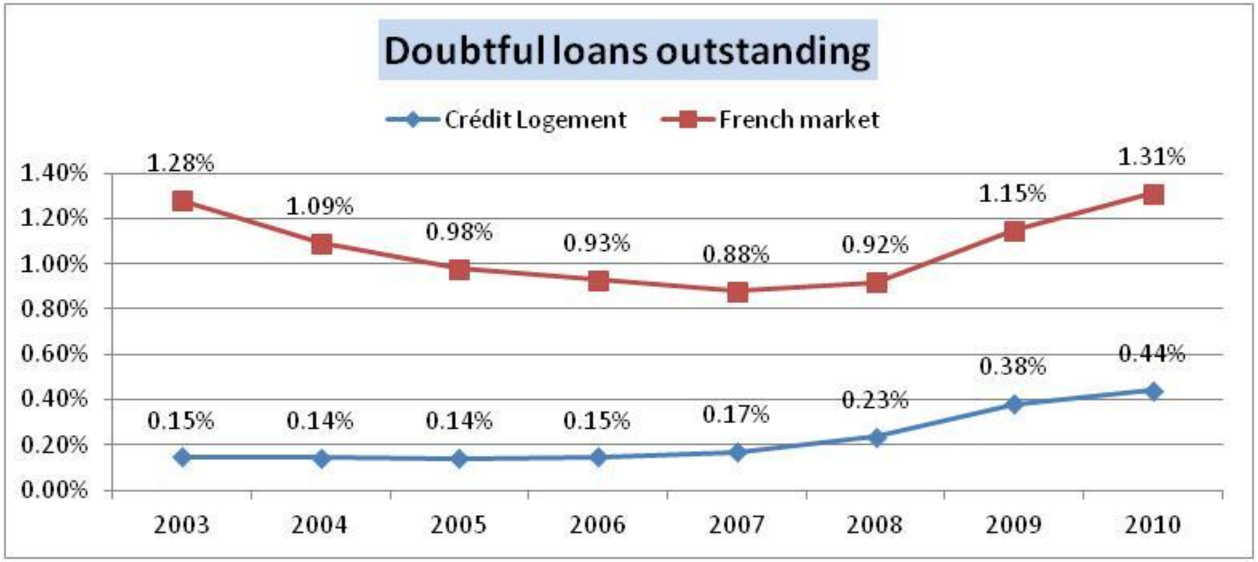
EU vs US: Difference? What difference?

- The Basel 1 floor is still in force in the EU, however not included in the RWA/Assets calculation. It could lift RW density in at least 0.75%.
- Investments in software are deducted from capital in the EU instead of risk weighted at 100%. This means that IT developments held on balance sheet requiere 12.5 times more capital than plants, properties and equipment. The effect on RW density could be somewhere between 0.6% and 1%.

EU vs US: Difference? What difference?

- Insurance schemes play an important role across the EU.
- In particular, residential mortgages are better covered:
  - No ‘walk away’ option.
  - Programs like the Nationale Hypotheek Garantie in the Netherlands entail better performance.
  - Mutual guarantee funds like the Credit Logement in France show significantly lower credit losses.

EU vs US: Difference? What difference?



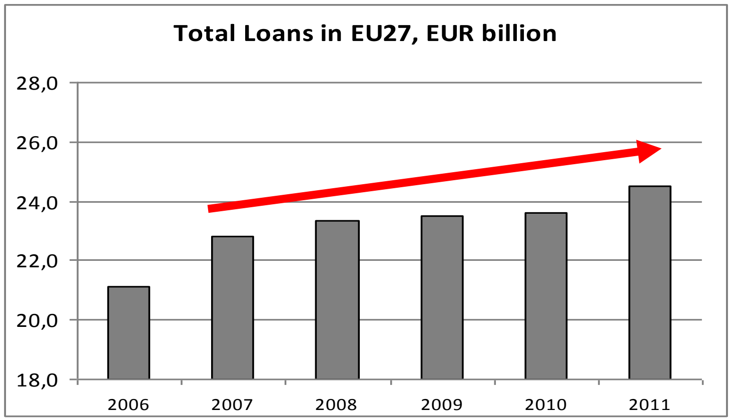
Shift to less risky assets (after Basel II)

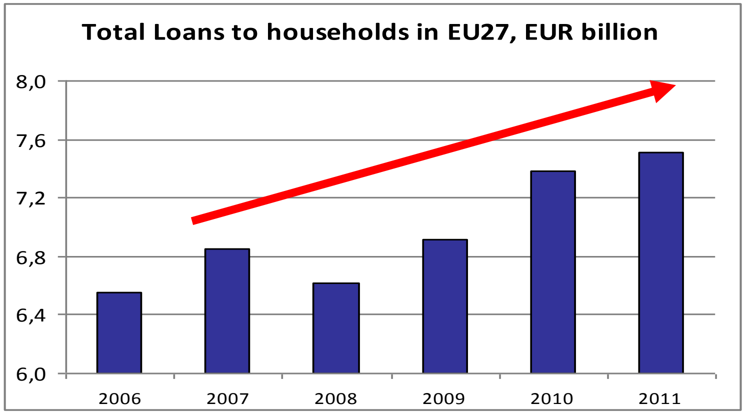
- Total loans: Slight growth
- Loans to households: Notable increase
  - Three fourths are residential mortgages
  - Retail lending RW around 30%
- Corporate lending: Stability
  - Reallocation of exposures – Risk reduction
  - RW around 52%
- Equity: Marked decrease
  - RW between 290% and 370% in STD and same range in PD/LGD

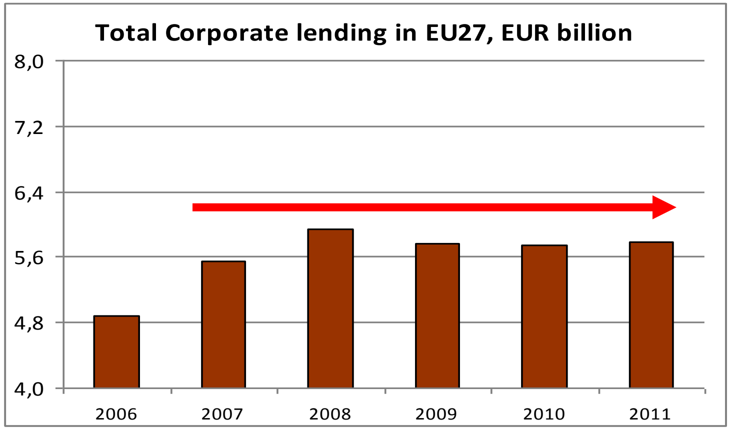
European Banking Federation

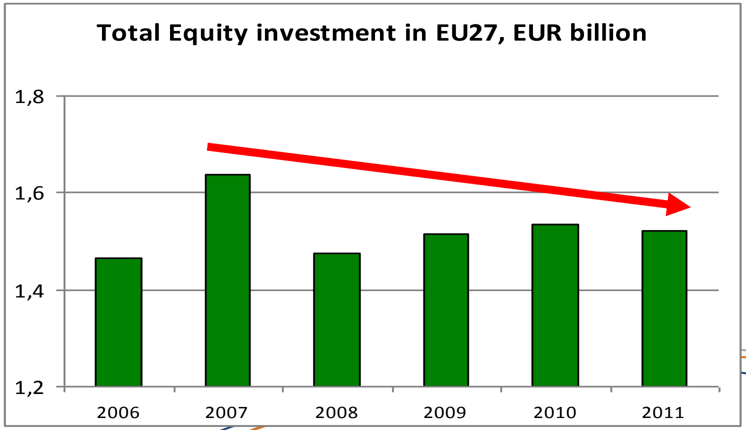
An in-depth look at RWAs

Shift to less risky assets (after Basel II)







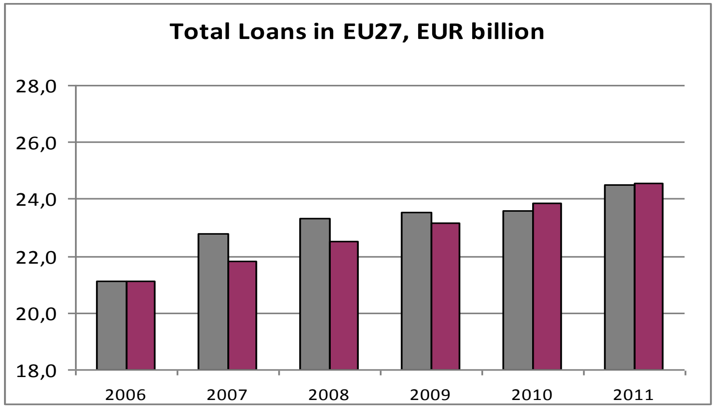


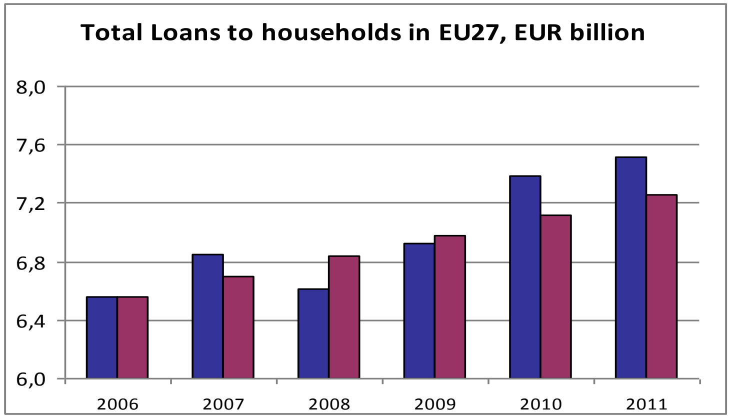
Source: Bankstat

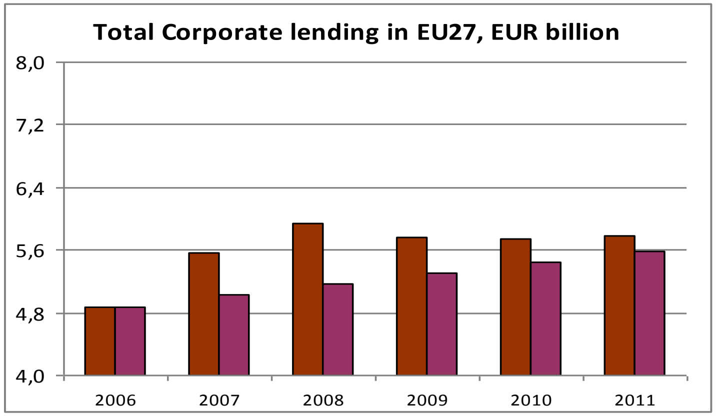
European
Banking
Federation

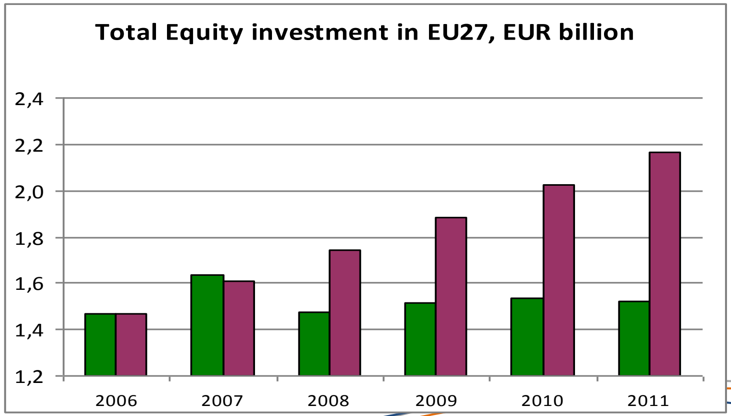
An in-depth look at RWAs

Shift to less risky assets (after Basel II)









Equal growth across asset classes

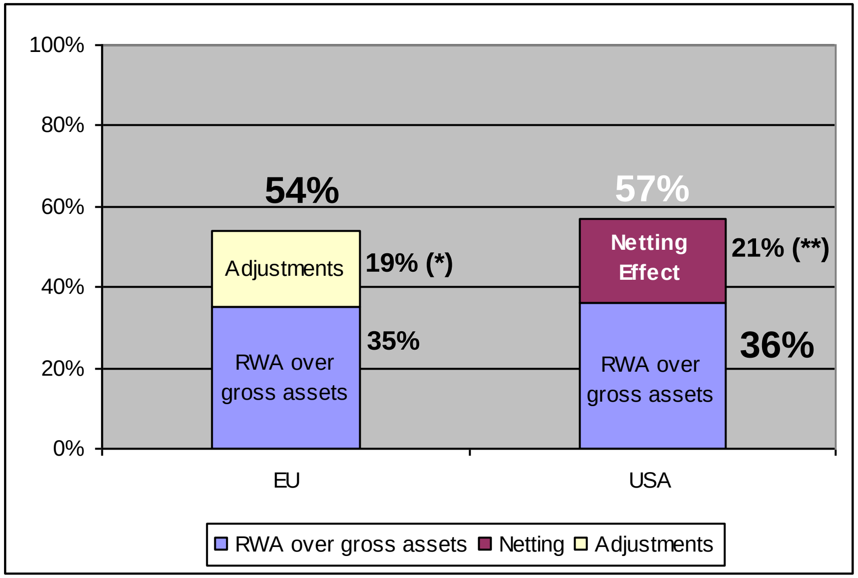
EU vs US: Difference? What difference?

- Pillar 2 is an integral part of Basel II and complements the Pillar 1 capital requirements.
- Scenarios:

PILLAR 2 CAPITAL REQUIREMENT	INCREASE ON RW DENSITY
+ 2%	+ 8.6%
+ 1.5%	$\boxed{+ 6.5\%}$
+ 1%	+ 4.3%

EU vs US: Difference? What difference?

2010 RWA in percentage of 'total assets' in Europe and the US



A fair comparison would show European banks bearing risk weights close or higher than those of US banks.

(*) EBF lower bound estimates
(**) Estimated for 3 large banks

EBF study on retail mortgages

- Input from EBF questionnaire on IRB practices
- Experts from 42 individual banks
- Representing 14 European countries
- First quarter 2012

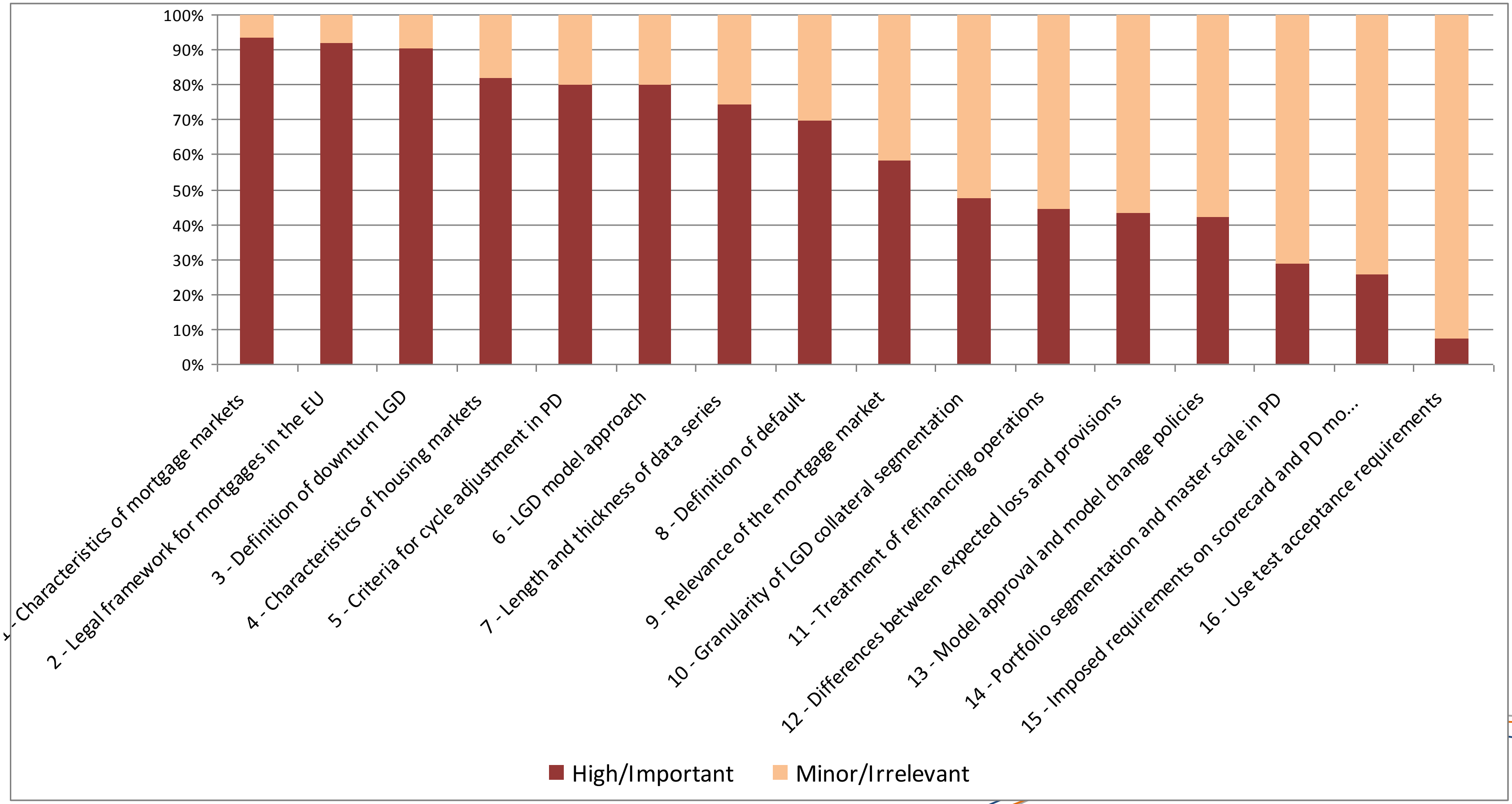
EBF study on retail mortgages

	% of residential mortgage	
	over total loans	over loans to households
Austria	14%	58%
Belgium	15%	77%
Bulgaria	14%	47%
Cyprus	16%	53%
Czech Republic	29%	70%
Germany	21%	68%
Denmark	44%	87%
Estonia	40%	84%
Spain	29%	76%
Finland	29%	74%
France	19%	77%
UK	29%	86%
Greece	25%	61%
Hungary	18%	50%

	% of residential mortgage	
	over total loans	over loans to households
Ireland	15%	71%
Italy	15%	59%
Lithuania	31%	78%
Luxembourg	4%	60%
Latvia	32%	79%
Malta	18%	73%
Netherlands	27%	89%
Poland	33%	59%
Portugal	35%	81%
Romania	11%	32%
Sweden	37%	80%
Slovenia	13%	55%
Slovakia	32%	72%
Total-EU27	23,1%	75,3%

EBF study on retail mortgages

Individual bank qualitative assessment of the impact of different factors on RWA outcomes



Source: EBF

EBF study on retail mortgages

- Characteristics of mortgage markets
  - Typical loan-to-value
  - Limits to loan-to-value
  - Equity withdrawal
  - Tax relief
  - Predominant currency
  - Maturity
- Legal framework
  - Liability of the borrower
  - Execution of mortgage collateral
  - Duration of legal process

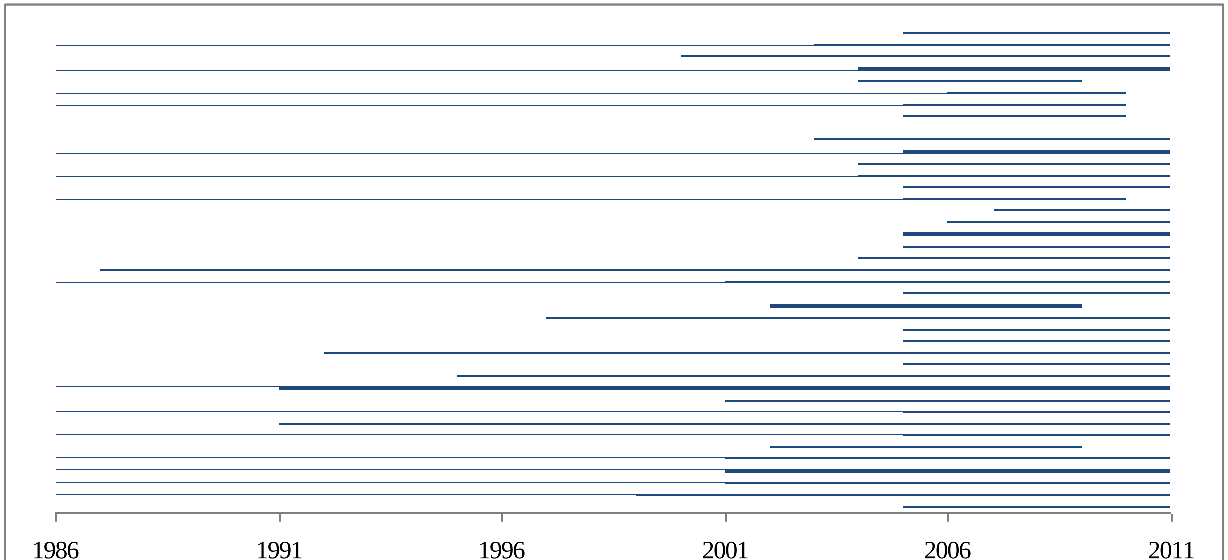
EBF study on retail mortgages

- Characteristics of models
  - Downturn LGD
  - Cycle adjustment
  - Length of data series
  - Definition of default
- Supervisory guidance
- Other factors

EBF study on retail mortgages

Regarding the Probability of Default

Length of data series - PD



Source: EBF Questionnaire

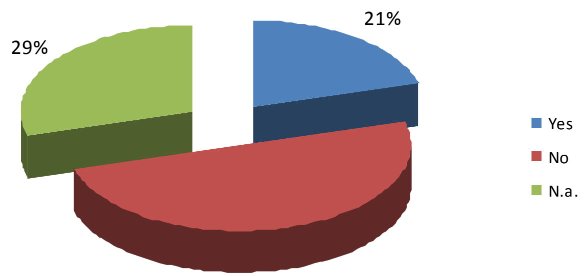
EBF study on retail mortgages

Regarding the Probability of Default

Type of model used for PD

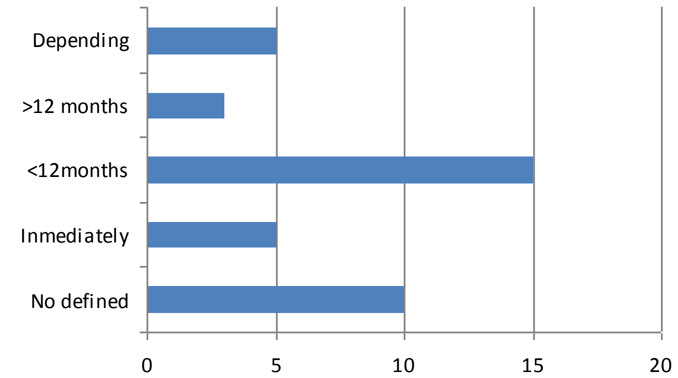
	Number of banks
Mixed	16
PIT	14
TTC	2
n.a.	3

Cyclical adjustment



Source: EBF Questionnaire

Time before being reclassified as performing

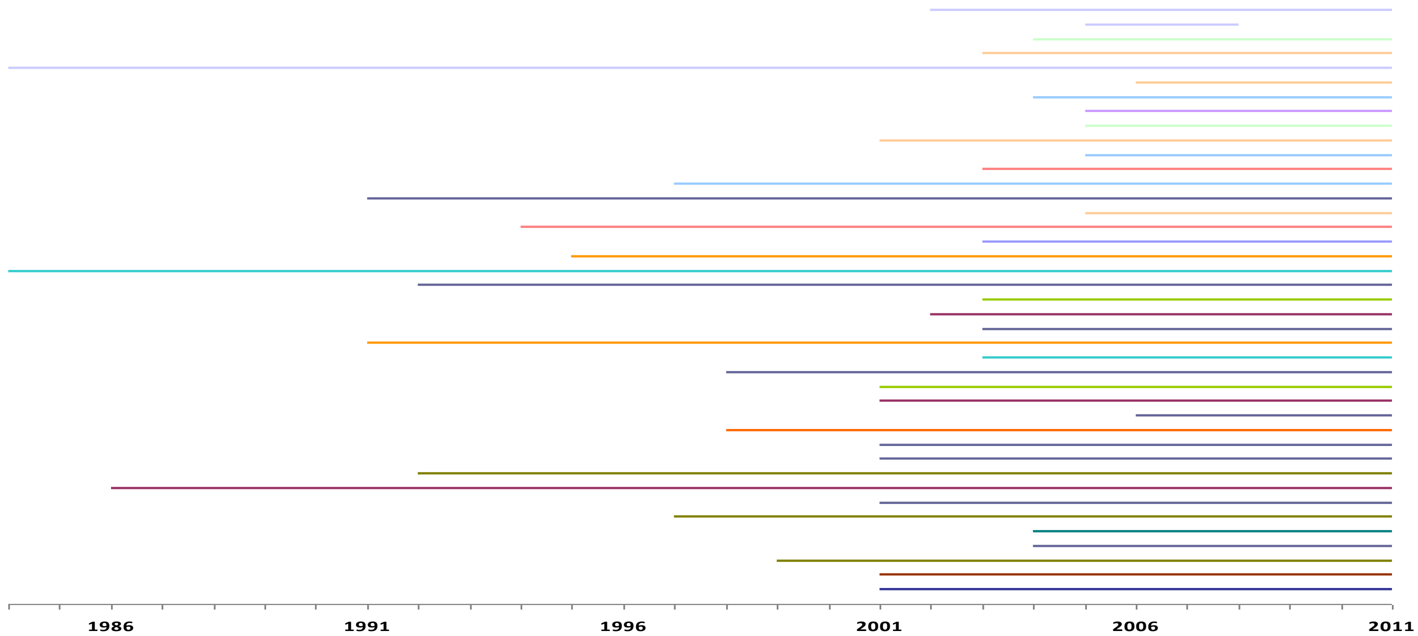


Source: EBF Questionnaire

EBF study on retail mortgages

Regarding the Loss Given Default

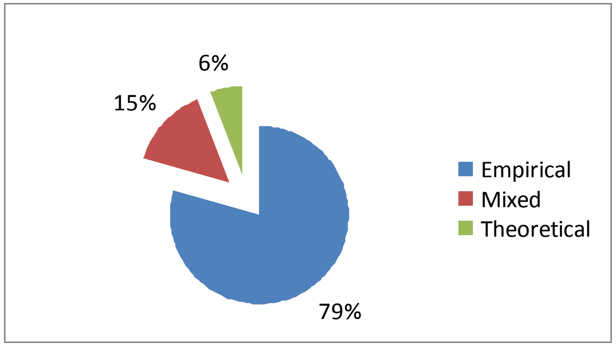
Length of data series - LGD



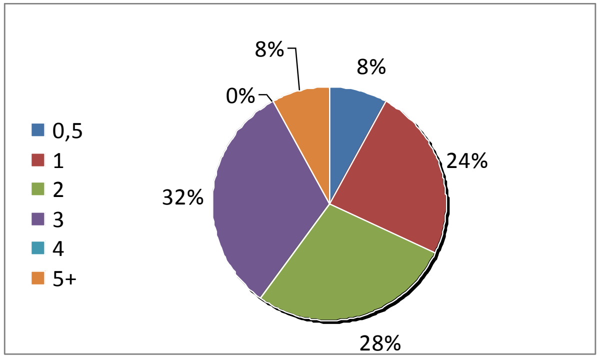
EBF study on retail mortgages

Regarding the Loss Given Default

Type of model used for LGD



Time to recovery



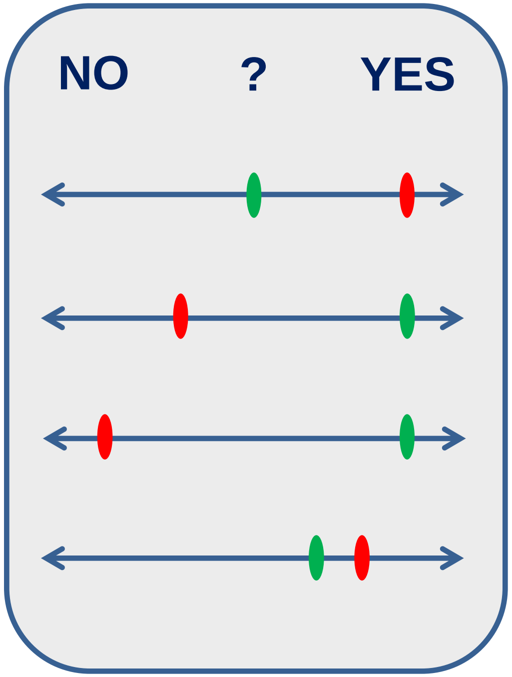
Ways of application of the LGD floor

Application of LGD Floor	% of respondents
Portfolio level	36%
Tranche or Segment level	15%
Individual Asset level	21%
Above floor/no detail supplied	27%

WRAP-UP

General perception

Closer analysis



Are regulatory IRB models sound at large ?

Are banks reducing RWAs ?

Are EU overall RWs more lenient than US RWs ?

Are there differences in IRB models ?

European
Banking
Federation

Questions or comments?

50 Years of European Banking Representation