EU Banking Stability
One Size does not Fit All

Jean Dermine, INSEAD

EBA, 28 November 2019

Never Again!

- 1982 LATAM Emerging Markets
- 1982 US S&L
- 1991 Global Real Estate and Corporate Loan
- 1992 Japan, Scandinavia
- 1997 Asia Financial Crisis
- 1998 Russia
- 2000 End of Tech & Telecom Bubble
- 2002 Argentina
- **2007-2008 Subprime crisis. Never again!**
- **2011, 2015, 2018 European Sovereign**
- **2019 Argentina**

Banking Markets Architecture

- Control of liquidity risk (Basel 3)
- Control of market risk (Basel 2.5, FRTB)
- Control of capital (Basel 3, CET1)
- Control of counterparty risk (CCP)
- Control of compensation schemes
- Control of systemic risk
- Control of Permissible Activities (proprietary trading)
- Control on corporate structure (ring-fenced banks)

Re-Regulation

Increase incentives to securitize assets (*originate-to-distribute model*)

Shadow banking

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Banking Markets Architecture, a New Paradigm

- Let us be modest: accept uncertainty, inability to identify and measure risks
- Stop the linkage from bank losses to State aid and public debt (sovereign risk)
- Prevent moral hazard (ends *too-big-to-fail*)

→ Let us privatize losses

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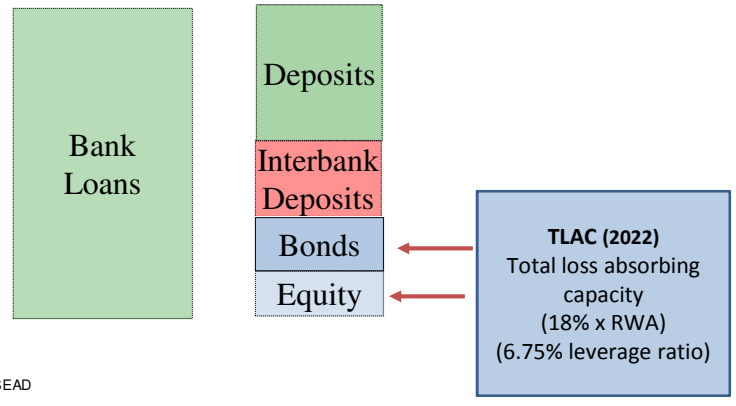
5

Bank Resolution and Bail-in Bonds

Before bankruptcy, a Special Resolution Authority will have the right to restructure a financial institution.



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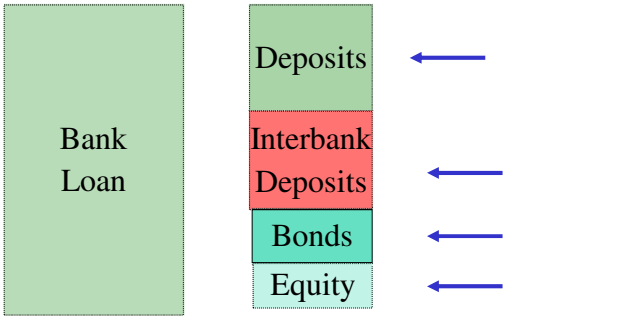
6

Euro-zone Single Resolution Mechanism



Except for a few secured liabilities (such as insured deposits), bail-in debt includes all unsecured liabilities with more than 7 days maturity.

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Banco Popular, June 2017

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Special Resolution Mechanism, Four Issues

1. **Holders of banks' *bail in* debt?**

2. **Risk of bank run and liquidity crisis**

3. **Insured deposits and bank risk-taking**

4. **Systemic risk (many banks failing together)**

So, still a need for bank regulation and supervision

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With Basel Capital Regulation, Do we Need Stress Test?

What is the added information of EU-wide bank stress test?

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Basel IRB Capital

Define : PD = one year-probability of default
LGD = Loss-Given-Default = 45 % (senior, unsecured claim)
M = Maturity ; R = Correlation ; b(PD) = maturity adjustment
N (.) = cumulative standard normal distribution ; G (.) = inverse cumulative standard normal distribution
RWA = Risk-Weighted Asset = Capital x 12.5

$$Capital = K(PD) = [45xN[\frac{G(PD)}{\sqrt{1-R}} + \frac{\sqrt{R}\,x\,G(0.999)}{\sqrt{1-R}}] - 45xPD] \; x\,[\frac{1+(M-2.5)\,x\,b(PD)}{1-1.5\,x\,b(PD)}]$$

PD (%)	Capital M =2.5 years	RWA for M=2.5 years
0.03%	1.16	14.44
1%	**7.39**	**92.32**
2%	9.19	114.85

With correlation (R) = 0.12 x (1 - e^{-50xPD}) / (1 - e^{-50}) + 0.24 x [1 - (1 - e^{-50xPD}) / (1 - e^{-50})]
Maturity adjustment = b (PD) = (0.11852 - 0.05478 x ln (PD))^2

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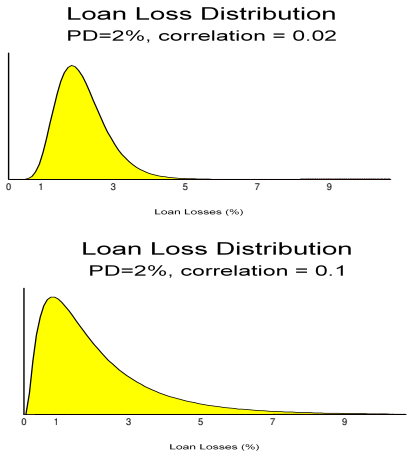
Asymptotic Single Risk Factor (ASRF) Oldrich Vasicek



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Do we Need a Stress Test?

- Forward looking
- ASRF model is imperfect guide to capital regulation

- LGD, PD bias
- Normal distribution
- One factor model
- Asymptotic
- Correlation

} Concentration Risk

➡ Stress test with a specific economic scenario narrative should provide **additional info** on bank solvency

13

Value Add of 2018 Stress Test?

2018 EU-Wide Stress Test Results
- Capital/leverage ratio at start of exercice 2017
- Capital/leverage in 2020 under 3-year adverse stress scenario

Capital/Leverage 2017	**Capital/Leverage 2020 (adverse scenario)**
-	-
-	-

Do stress test results add info on solvency? Indirect approach

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Value Add of 2018 Stress Test?

2018 EU-Wide Stress Test Results
- Capital/leverage ratio at start of exercice 2017
- Capital/leverage in 2020 under 3-year adverse stress scenario

Is the excess reg capital (8%) observed in 2017 a good predictor of excess capital (5.5%) in a 3-year 2020 stress ?

If bad predictor, stress tests add value

If good predictor, stress tests do not add much value

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15

Value Add of 2018 Stress Test?

Do stress test results add info on solvency? Indirect approach.

Is the excess reg capital (8%) observed in 2017 a good predictor of excess capital (5.5%) in a 3-year 2020 stress ?

Correlation (excess capital): 95%

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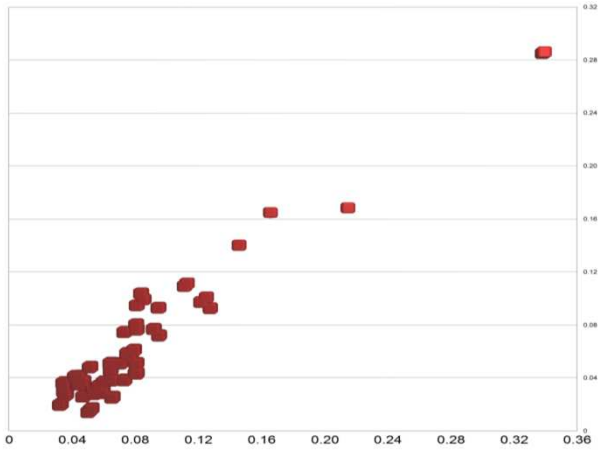
16

Value add of 2018 Capital Stress Test? (n = 48)



$Y = - 0.0085 \times 0.902^{***} X$ $R^2 = 0.90$

17

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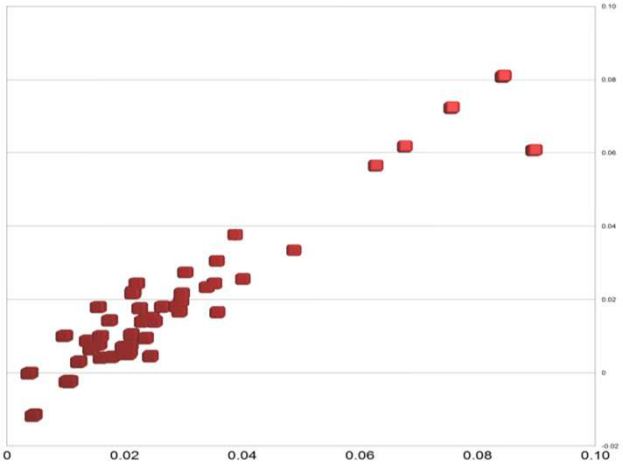
Value add of 2018 Leverage Stress Test?
Benchmark leverage: 3%



$Y = - 0.0079 \times 0.956^{***} X$ $R^2 = 0.9$

18

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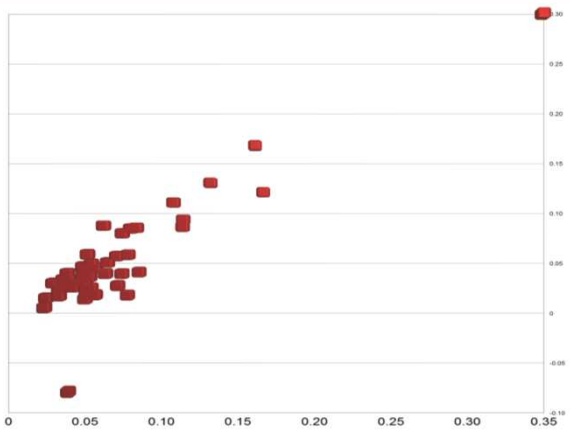
Value add of 2016 Capital Stress Test? (n = 51)



$Y = - 0.01 \times 0.922^{***} X$ $R^2 = 0.81$ Correl: 90% 19

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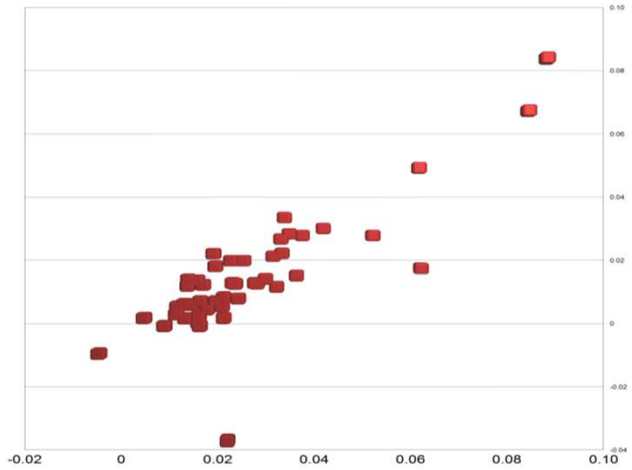
Value add of 2016 leverage stress test?



$Y = - 0.0075 \times 0.837^{***} X$ $R^2 = 0.69$ Correl: 83% 20

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What do these empirical results mean?

Current reg cap is a very good predictor of adverse stress cap

Interpretation 1: Basel cap captures very well adverse stress scenarios. Do not need stress tests ?

Interpretation 2: Stress stress do not capture Basel main weakness: credit risk concentration.

→ Need more complex economic scenarios with several industry indices.

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Additional Comments

1. Use of Market Value vs Accounting Value
2. Leverage ratio
3. Domestic government bond holdings

Conclusions and Constructive Suggestions

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Price-to-Book Ratio

12 September 2019 (Source: S&P Capital IQ)

UK	
Barclays	**0.4**
Standard Chartered Bank	**0.6**
USA-CAN	
Citigroup	**0.8**
JPMorgan Chase	**1.4**
Royal Bank of Canada	**1.8**
Germany-I-S	
Deutsche Bank	**0.24**
UniCredit	**0.4**
SvenskaHandelsbanken	**1.3**
Brazil / Mexico	
Itau Unibanco	**2.6**
Banorte	**1.8**

$$Price-to-Book = \frac{Value\ of\ Shares}{Book\ Value\ of\ Equity}$$

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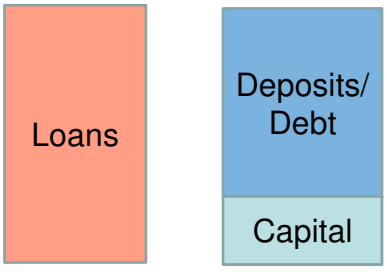
Why Capital Regulation?



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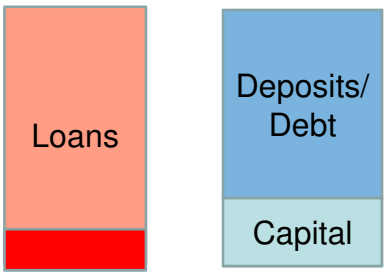
Why capital regulation?



Objective: A private recapitalization

Assets > Debt ➡ positive net cash flows

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Second source of cash flows for new shareholders: the future profits

Market Value of Shares = Liquidation value
+ Franchise value (future value)

Accounting/reg data refer to liquidation value (tangible equity)
Market value data includes franchise value

So if objective is recapitalization and future cash flows, reg capital should take into account Market Value

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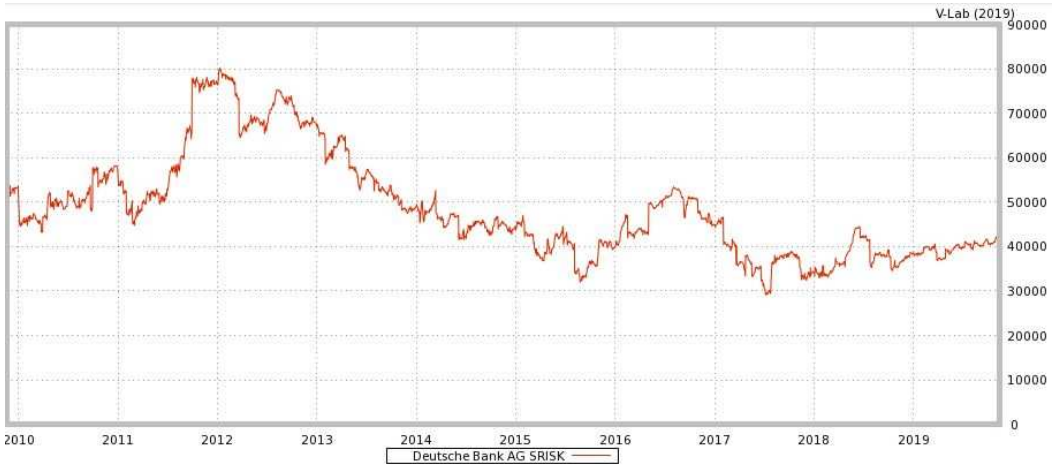
SRISK($mn capital shortage)
Deutsche Bank

Source: NYU Stern Vlab (19 November 2019. Stress Leverage of 3%)



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Private Recapitalization Objective

- Market value of shares adds info on future profitability
- SREP: Adjust capital and leverage regulations to Price-to-Book

One Size does not Fit All

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IRB Capital and Leverage Ratio

- "Basel III Leverage Ratio Requirement and the Probability of Bank Runs", Journal of Banking and Finance, April 2015.

- LGD - PD bias
- Need for a floor, a reserve in good times for future recession
- Fear of excess leverage in the economy
- **Imperfect information on value of bank's assets**

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Capital Regulation and Basel II/III/IV

Year 0 (today)

Funding with deposit/capital

Choice of risk

Year 1

Potential Loss

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Model with imperfect information on loan losses and liquidity risk (bank run)

0 ***t*** **End of Year 1**

Imperfect Information disclosure on losses

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Impact of diversification and probability of default on probability of bank run

- Table 1: Capital is calculated with Basel II relation (2) for a **confidence level of 99%.** Probability of a bank run is calculated, assuming that the **noise *u* is distributed over the interval [-1%, +1 %].** PD = Unconditional probability of loan default.

	PD = 0.5%		PD = 1%		PD = 2%	
Correl	Cap (%)	**Prob of run**	Cap (%)	Prob of run	Cap (%)	Prob Of run
0.1	2.62	**5.7 %**	4.68	2.47	8.24	1.7
0.2	4.3	1.91	7.53	1.46	12.86	1.28
0.3	5.99	1.42	10.43	1.24	17.57	1.16

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Key-message

- SREP: Leverage ratio should be adjusted to imperfect valuation (business complexity, NPLs net of prudent collateral…)

  One size does not fit all!

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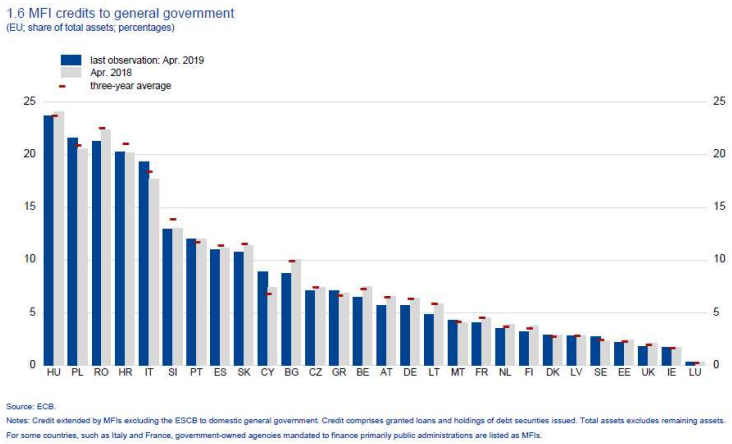
Home Bias in Government Bonds Holdings

Source: ESRB, 13 June 2019



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EU Proposal

Sovereign Backed Bond Securities (SBBS), a securitized portfolio of existing government bonds. European Safe Bonds (ESBies)

- 2017: European Commission on Deepening the Economic and Monetary Union
- 2019: European Parliament adapt the capital regulation to ESBies

Question: Will there be a demand for safe bonds from banks in *low rated* countries?

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Home Bias in Government Bonds Holdings

- Banks' Home-Bias in Government Bonds Holdings. Will the Supply of ESBies Create its Own Demand?, J. Dermine, November 2019

- Moral hazard and risk-taking
- Gambling for resurrection
- Moral suasion and repressed finance
- Store of value (liquidity)
- **Sovereign-based ceiling on the rating of a bank (S&P refers to 'highly sensitive' corporate)**
- **Bank tax or bank levy**

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Six Key-Messages. One Size does not Fit All. Low Risk Banks should be Rewarded

1. **Better understanding as to why stress tests do not seem to add much information relative to Basel capital**
2. **Lighter stress test for banks with current excess capital (need to disclose bank regulatory capital as in ECA)**
3. **SREP. Pay attention to Market Value of Shares and Price-to-Book (as in ECA)**

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Six Key-Messages. One Size does not Fit All. Low Risk Banks should be Rewarded

1. Better understanding as to why stress test do not seem to add much information relative to Basel Capital.
2. Lighter stress test for banks with current excess capital (need to disclose bank regulatory capital as in ECA)
3. Pay attention to Market Value of Shares and Price-to-Book (as in ECA)
4. **SREP. Lighter leverage ratio for simple, transparent bank model**
5. **Government bonds holdings: must give a reward to holding of safe assets**
6. **In EU-Wide Stress Test Disclosure: Data on reg capital/leverage, bank rating, banks' bond credit spread and price-to-book.**

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