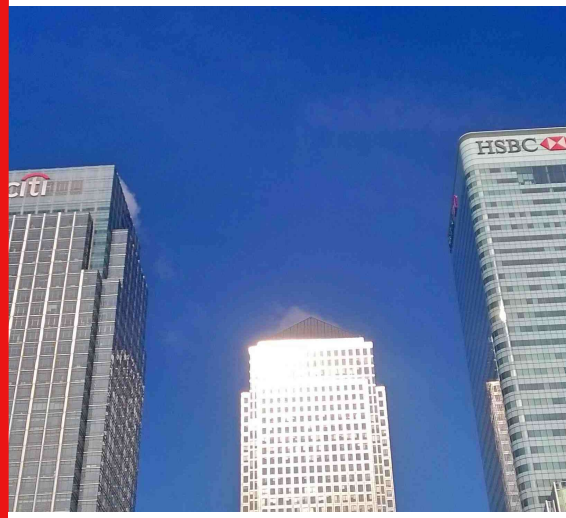
Bank capital structure: A story of internationalization and business model

- a discussion of the paper by Justine Pedrono and Aurélien Violon

Monika Marcinkowska

UNIVERSITY OF LODZ



2018 EBA Policy Research Workshop

"Reaping the benefits of an integrated EU banking market"

Issue #1:
Internationalization

UNIVERSITY OF LODZ

Internationalization

- Both theory and practice suggest that internationalization of banking operations have implications for the risk profile & level (incl. systemic risk), performance, balance sheet structure etc.
  - Several studies confirm specific relationships

=> **The choice of the topic is justified; the research problem seems to be important with significant implications**

Internationalization

- Several studies confirm specific relationships

CGFS Papers
No 39

Funding patterns and liquidity management of internationally active banks

Report submitted by a Study Group established by the Committee on the Global Financial System

This Study Group was chaired by Mário Mesquita of the Central Bank of Brazil

May 2010

BIS Working Papers
No 614

Changing business models in international bank funding

by Leonardo Gambacorta, Adrian van Rixtel and Stefano Schiaffi

Monetary and Economic Department

March 2017

Tit for tat and big steps: The case of Swedish banks' internationalization 1961–2010

Peter Ekman [a,*], Annoch Isa Hadjikhani [b], Andreas Pajuvirta [b], Peter Thilenius [b,*]

The credit crisis around the globe: Why did some banks perform better? ☆

Andrea Beltratti [a], René M. Stulz [b,c,d,*]

Bank activity and funding strategies: The impact on risk and returns ☆

Asli Demirgüç-Kunt [a], Harry Huizinga [b,*]

Foreign bank diversification and efficiency prior to and during the financial crisis: Does one business model fit all?

Claudia Curi [a,*], Ana Lozano-Vivas [b], Valentin Zelenyuk [c]

Should banks diversify or focus? Know thyself: The role of abilities

Bill B. Francis[a], Iftekhar Hasan[b,*], A. Melih Küllü[c], Mingming Zhou[d]

Financial institutions' business models and the global transmission of monetary policy ☆

Isabel Argimon [a], Clemens Bonner [b,d], Ricardo Correa [c,*], Patty Duijm [b], Jon Frost [b,d,e], Jakob de Haan [b,f,g], Leo de Haan [b], Viktors Stebunovs [c]

El modelo de negocio de los bancos españoles en América Latina

Antonio Cortina[1] y Santiago Fernández de Lis[2]

Business models and bank performance: A long-term perspective

Frederik Mergaerts *, Rudi Vander Vennet

Why do some banks contribute more to global systemic risk?

Denefa Bostandzic[a], Gregor N.F. Weiß[*,1,b]

Banking business models and the nature of financial crisis

Aneta Hryckiewicz [a,*], Łukasz Kozłowski [b]

The effect of implicit deposit insurance on banks' portfolio choices with an application to international 'overexposure'

Alessandro Penati, Aris Protopapadakis

The determinants of global bank lending: Evidence from bilateral cross-country data ☆

Uluc Aysun [a,*], Ralf Hepp [b]

An event study analysis of too-big-to-fail after the Dodd-Frank act: Who is too big to fail?

Kyle D. Allen[a], Ken B. Cyree[b], Matthew D. Whitledge[c], Drew B. Winters[d,*]

U.S. monetary policy and fluctuations of international bank lending ☆

Stefan Avdjiev [a,*], Galina Hale [b]

The effect of foreign lending on domestic loans: An analysis of US global banks ☆

Edith X. Liu [a,*], Jonathan Pogach [b]

Internationalization of Korean banks during crises: The network view of learning and commitment

Joong-Woo Lee [a], Hong Sun Song [b], Jooyoung Kwak [c,*]

Systematically important banks and increased capital requirements in the Dodd-Frank era

Chandler Lutz

Which banks are more risky? The impact of business models on bank stability

Matthias Köhler *

The Dodd-Frank Act and Basel III: Market-based risk implications for global systemically important banks (G-SIBs) ☆

Sunil K. Mohanty[a,*], Aigbe Akhigbe[b], Abdulrahman Basheikh[c], Haroon Rashid Khan[c]

A European banking business models analysis: the investment services case

Paola Musile Tanzi
Department of Economics, University of Perugia and SDA Bocconi, Milan, Italy
Elena Aruanno
Valeur SA, Lugano, Switzerland, and
Mattia Suardi
ANASF, Milan, Italy

*Aneta Hryckiewicz-Gontarczyk**

BANK ACTIVITIES AND THEIR RISK. DOES AN OPTIMAL MODEL EXIST IN BANKING?

BANK RISK DURING THE FINANCIAL CRISIS

DO BUSINESS MODELS MATTER?

by Yener Altunbas, Simone Manganelli and David Marques-Ibanez

UNIVERSITY OF LODZ

Internationalization

- **D**efinitions
  - Internationalization in assets and liabilities =
    - „Ratio of total assets or liabilities denominated in a given currency relative to the total assets in all currencies"
    - Share of items denominated in USD
    - Aggregated currency exposures at the banking group level

$$\frac{Inter.\ Asset}{Inter.\ Liab.}$$

$$\frac{Assets\ denominated\ in\ USD}{Total\ Asset}$$

$$\frac{Liabilities\ denominated\ in\ USD}{Total\ Asset}$$

Internationalization

- **Limitations**:
  - Only assets and liabilities
    - No off-balance sheet items
  - Concentration on currency and not geography of activities
    - FX transactions may be domestic
    - Only one foreign currency
  - No specification of <u>international involvment (activities /operations)</u>
    - local (domestic) / foreign assets, liabilities & capital
    - cross-country operations
    - residents / non-residents
  - Banking group level may not capture well the real internationalization

$$Inter.\ Asset$$

$$Inter.\ Liab.$$

$$\frac{Assets\ denominated\ in\ USD}{Total\ Asset}$$

$$\frac{Liabilities\ denominated\ in\ USD}{Total\ Asset}$$

[12]This measure may raise two issues. First, there is a risk of a double counting because of intra-group flows. However, as long as diversification is a ratio, the double counting appears in both the numerator and the denominator. Second, unconsolidated data do not include exposures of all affiliates abroad. Thus, this measure of currency diversification might underestimate the true degree of diversification of a banking group. An alternative of this measure consists in keeping the exposures of the head of the group only. However, this alternative shows really thin differences with our measure, except for cooperative banking groups. As cooperative banking groups are more decentralized, we believe that our measure better captures the overall currency diversification of these groups.

Internationalization

- Does the paper deal with the internationalization issue or only **FX** (USD) **exposure**?
- Should there be different categories of operations taken into account separately?
  - to exclude the effect of FX risk management (e.g. FX loans taken/securities issued to match FX loans granted)
- Should some other measures / proxies of internationalization be used?
- Should the level of centralization/decentralization be included?

[12]This measure may raise two issues. First, there is a risk of a double counting because of intra-group flows. However, as long as diversification is a ratio, the double counting appears in both the numerator and the denominator. Second, unconsolidated data do not include exposures of all affiliates abroad. Thus, this measure of currency diversification might underestimate the true degree of diversification of a banking group. An alternative of this measure consists in keeping the exposures of the head of the group only. However, this alternative shows really thin differences with our measure, except for cooperative banking groups. As cooperative banking groups are more decentralized, we believe that our measure better captures the overall currency diversification of these groups.

Internationalization

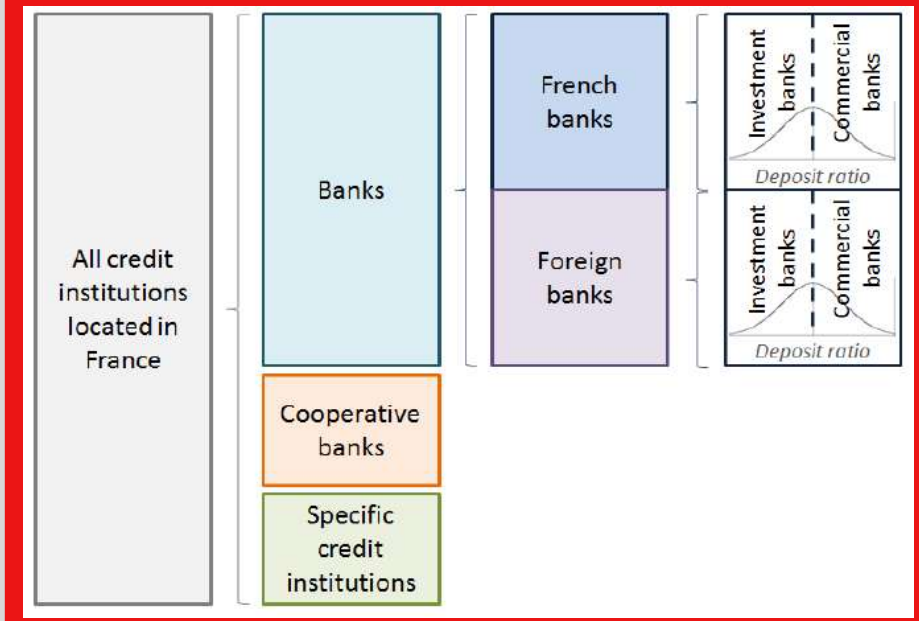
- Additional issue to concern:
  - Potential influence of capital requirements
    - Risk weights
      - changes during the period
    - Countercyclical capital buffer
      - not oresent during the period, but important for policy implications

Issue #2:
Business models

UNIVERSITY OF LODZ

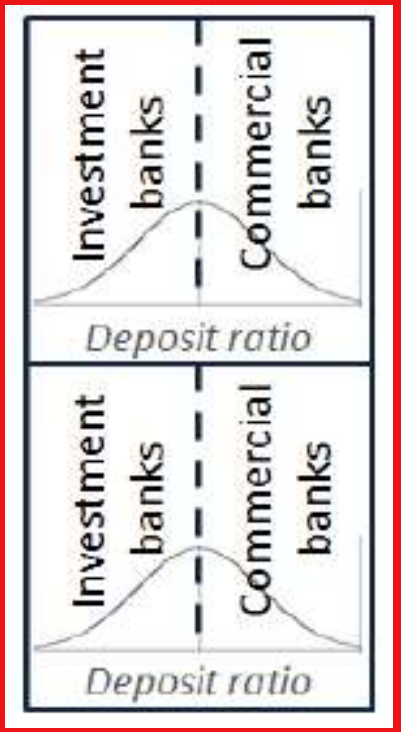
Banking business models

- Definition of business models is based on:
  - the **legal form and nature** of the institution (banks /cooperative banks/specific credit institutions),
  - the nationality of the banks (French/foreign),
    - a definition/explanation would be useful (headquarters? court register? sources of funding? foreign branches/subsidiaries of credit istitutions?)
  - the **deposit ratio** (investment/commercial banks)
    - Investment banks = average deposit ratio lower than the median value for the sub-sample



Banking business models

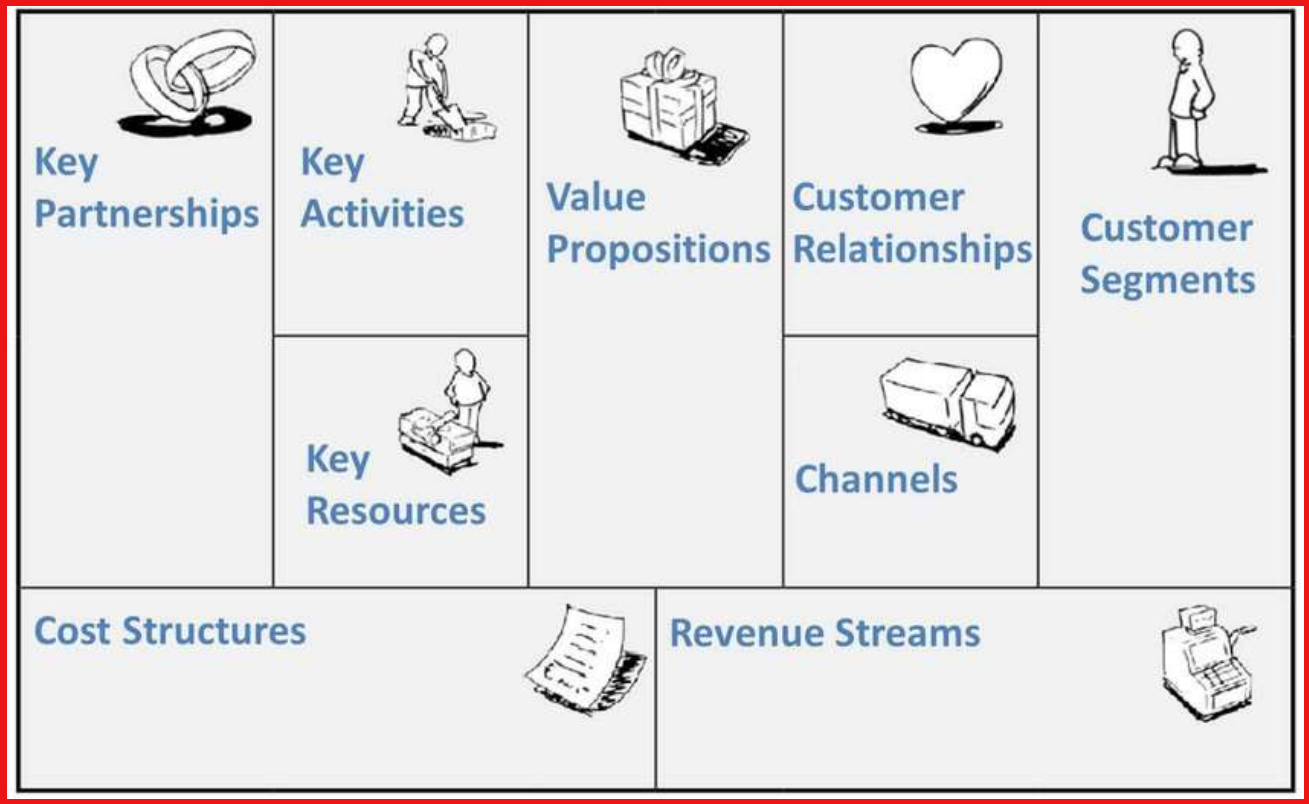
- Definition of business models
  - Is one ratio (*deposits*) enough?
  - Is the median value a sufficient determinant of a business model?



Banking business models

- What defines business models?
  - eg business model **canvas**

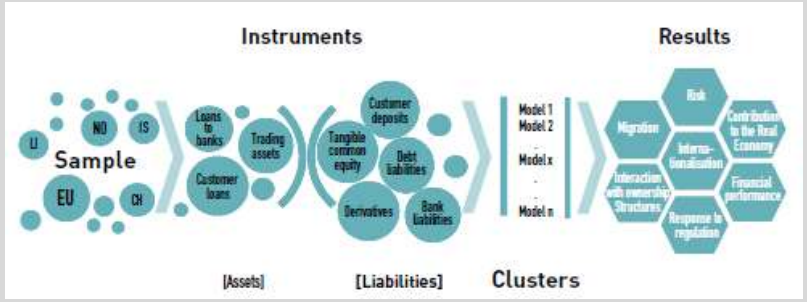
  (Osterwalder and Pigneur, 2010)
    - would require case studies



Monika Marcinkowska, *Discussion of „Bank capital structure: A story of internatio*

Banking business models

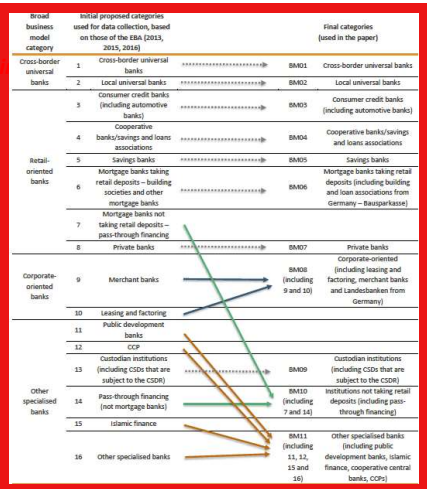
- Definition of business models
  - factor analysis
  - cluster analysis
    - the set of key **ratios** that differentiate bank's business profile
    - Assets, Liabilities & capital
    - P&L



Banking Business Models Monitor 2015 EUROPE

Rym Ayadi
Willem Pieter De Groen
Ibtihel Sassi
Walid Mathlouthi
Harol Rey
Olivier Aubry

Total assets (balance sheet size)
Share of exposures secured by residential immovable property on institution balance sheet
Size of trading book
Share of derivatives on institution balance sheet
Cross-border activity
Share of retail deposits on institution balance sheet
Share of securities liabilities on institution balance sheet
Share of interbank borrowing on institution balance sheet
Leverage ratio



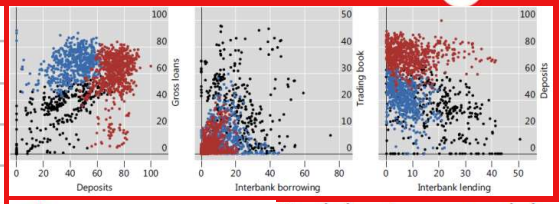
EBA EUROPEAN BANKING AUTHORITY

IDENTIFICATION OF EU BANK BUSINESS MODELS

A NOVEL APPROACH TO CLASSIFYING BANKS IN THE EU REGULATORY FRAMEWORK

by Marina Cernov and Teresa Urbano

Gross loans
Trade
Trading book
Interbank lending
Interbank borrowing
Wholesale debt
Stable funding
Deposits



BANK FOR INTERNATIONAL SETTLEMENTS

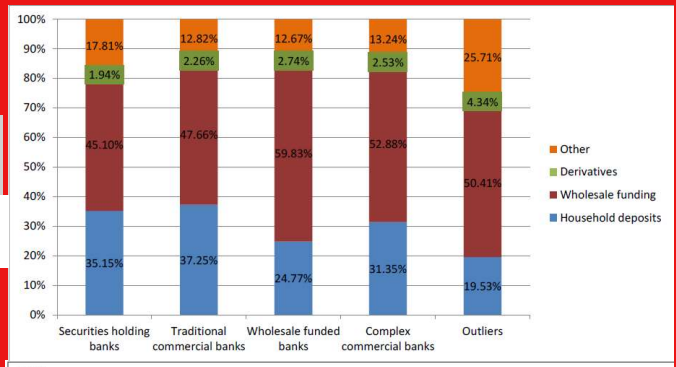
Bank business models: popularity and performance

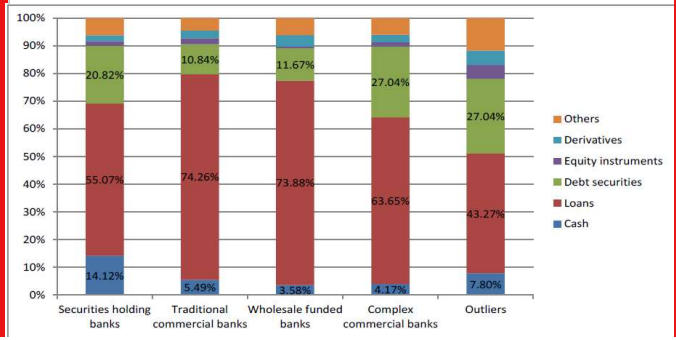
by Rungporn Roengpitya, Nikola Tarashev, Kostas Tsatsaronis and Alan Villegas

EUROPEAN CENTRAL BANK EUROSYSTEM

Matteo Farnè, Angelos Vouldis

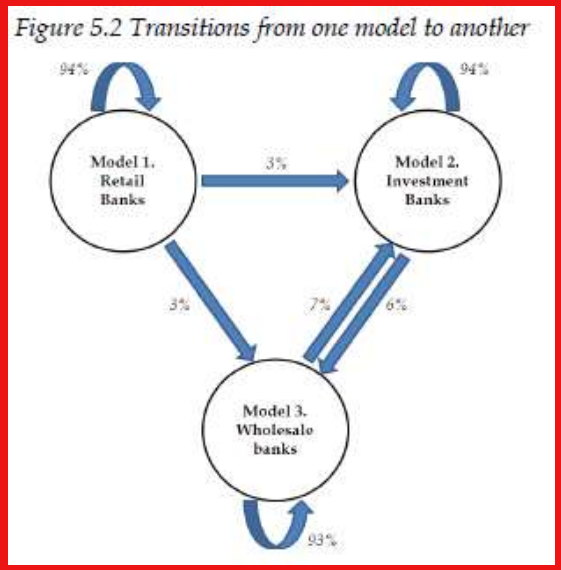
Business models of the banks in the euro area





Banking business models

- Is the the model identification of a given bank constant throughout the period
  - is the potential transition from one model to another included?

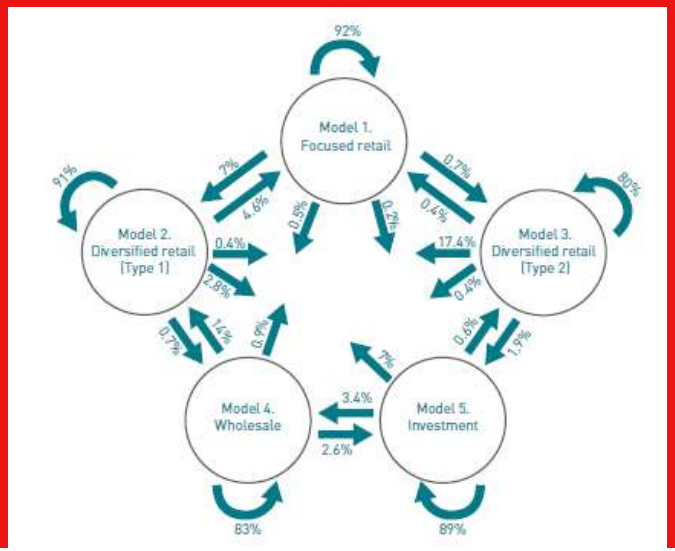


BUSINESS MODELS IN EUROPEAN BANKING

A PRE-AND POST-CRISIS SCREENING

RYM AYADI
EMRAH ARBAK
WILLEM PIETER DE GROEN

WITH A CONTRIBUTION FROM
DAVID T. LLEWELLYN



Banking Business Models Monitor 2015
EUROPE

Rym Ayadi
Willem Pieter De Groen
Ibtihel Sassi
Walid Mathlouthi
Harol Rey
Olivier Aubry

UNIVERSITY OF LODZ

Banking business models

- Further decomposition of „investment banking" model
  - Potential differences concerning capital requirements and leverage ratio

    eg.
    - **Proprietary trading**
    - **Market making**
    - **Hedging activities**

Business model components				Potential implications of LR
1	Activities	Retail banking	-	Since the LR is a non-risk-weighted measure, it would especially affect banks whose business model involves low-margin and low-risk but high-volume lending (e.g. certain types of mortgage lending and municipal finance). For those banks, the LR might become the de-facto limiting factor, although regulatory capital ratios would leave room for further lending. These banks might face challenges to generate sufficient earnings, if for a given amount of business a price adjustment is not possible, hence might be forced to alter their business model. This might involve changing the asset structure towards riskier assets to generate higher margins. Banks might thus shift their exposure from government financing or retail banking activities with high amounts of mortgage lending towards corporate banking, trading book and other non-traditional banking activities (though the final effects on retail may only be ascertained once the adjustments have taken place). Furthermore, evidence suggests that investment banking activities might be reduced if some divisions use a lower average risk weight compared to other business areas. As off-balance-sheet exposures are included in the calculation of the LR, they might fall, while the effect for private banking activities is inconclusive due to the different business elements of which they comprise.
		Corporate banking	+	
		Investment banking – Proprietary trading	-	
		Investment banking – Market making	-	
		Investment banking – Hedging activities	-	
		Private banking	+/-	
		Non- banking activities (insurance exposures...)	+	
		Off-balance-sheet exposures	-	

Business model components				Potential implications of capital requirements
1	Activities	Retail banking	+	Banks will move to business lines that require less capital. Retail banking will not be particularly affected and nor will long-term corporate loans and long-term asset-based finance businesses (commercial real estate, project finance for instance). Other products with relatively higher risk weights such as unsecured loans, and trade finance business will see a decline in volumes. Investment banking and trading businesses will be significantly affected due to the higher risk weights with fewer securitisations, lower trading book exposures and reduced activities in areas such as derivatives, repos and securities financing. It is possible that by reducing the trading book, banks might then increase the loan supply and make a profit out of retail business. An increase in loan supply would also lead to higher consumption and economic growth. The new regulatory measures make capital scarcer and more expensive. Banks will continue launching initiatives to improve capital efficiency for example by reassessing the models they have implemented so far and identifying further correction measures: RWA optimisation (model refinement, process improvement, enhancement of data quality); hedging activities; and new initiatives such as credit-risk and central counterparties models for the trading book and improving loan-loss provisions by eliminating flaws in current processes and models. In addition, banks may reduce credit exposure and potential credit losses through stricter credit approval processes and through lower limits, especially in regard to exposures that require more capital.
		Corporate banking	+/-	
		Investment banking – Proprietary trading	-	
		Investment banking – Market making	-	
		Investment banking – Hedging activities	+	
		Private banking	+/-	
		Non-banking activities (insurance exposures...)	+	
		Off-balance-sheet exposures	-	

EBA EUROPEAN BANKING AUTHORITY

Overview of the potential implications of regulatory measures for banks' business models

EBA Report

9 February 2015

UNIVERSITY OF LODZ

Issue #3:

Capital structure of banks

UNIVERSITY OF LODZ

Capital structure

- The paper well based on the theory of capital; has appropriate references and arguments regarding the relationship between the issues analyzed and the structure of capital
  - it would be good to refer to a greater extent to the literature on banks in particular and stress the specificity (if any)

Testing the Modigliani-Miller Theorem of Capital Structure Irrelevance for Banks

William R. C

The Modigliani-Miller propositions applied to banks: are b

On the Relevancy of Modigliani and Miller to Bank

Do the M & M propositions apply to banks?

Merton H. Miller *

Abstract

Yes and no.

Issue #4:
Hypothesis

UNIVERSITY OF LODZ

Hypothesis

- Although the second section of the article describes the key issues and gives an outline of the theory concerning the structure of capital (including - the impact of particular analyzed factors on the structure of capital), then there is no formulation of hypotheses
  - It would be useful to conclude each sub-section with the formal hypothesis

Issue #5:
Data

UNIVERSITY OF LODZ

Data

- Risk measure
  - RWA
  - caution: large differences between weights in the standardized and IRB approach
    - Extract sub-groups?
    - or…

Because most of credit institutions are not publicly traded, we cannot apply the benchmark measure of risk that is used in the literature, namely the standard deviation of daily stock price return. Instead, we used the Risk Weighted Asset (RWA) density that is collected by the French banking supervision authority.[10] This measure is consistent with alternative measures of risk, like the standard deviation of Return on Asset (RoA).

	SA RW	Exposure weighted average risk weight	Lower range RW[1]	Upper range RW[1]
Mortgages				
Prime				
0% <= LTV <50%	35.0%	5.3%	4.5%	6.1%
50% <= LTV <60%	35.0%	9.1%	7.7%	10.5%
60% <= LTV <70%	35.0%	11.6%	9.8%	13.3%
70% <= LTV <80%	35.0%	16.6%	14.1%	19.1%
80% <= LTV < 90%	36.0%	22.4%	19.1%	25.8%
90% < = LTV < 100%	43.0%	33.3%	28.3%	38.3%
>=100%		55.6%	47.2%	63.9%
Buy to let				
0% <= LTV <50%	35.0%	7.8%	6.6%	9.0%
50% <= LTV <60%	35.0%	11.3%	9.6%	13.0%
60% <= LTV <70%	35.0%	15.1%	12.8%	17.3%
70% <= LTV <80%	35.0%	19.2%	16.3%	22.1%
80% <= LTV < 90%	36.0%	39.0%	33.2%	44.9%
90% < = LTV < 100%	43.0%	64.8%	55.1%	74.5%
Personal loans	75.0%	103.6%	88.0%	119.1%
Credit cards – revolving retail exposures				
UK credit cards	75.0%	120.7%	102.6%	138.8%
International credit cards	75.0%	175.8%	149.4%	202.2%
Corporate				
Large corporates		49.4%	42.0%	56.8%
Mid corporates		79.3%	67.4%	91.2%

BANK OF ENGLAND
PRUDENTIAL REGULATION AUTHORITY

Statement of Policy

The PRA's methodologies for setting Pillar 2 capital

April 2018

UNIVERSITY OF LODZ

Data

- Risk measure suggestions:
  - **Z-score**
  - **σROAA**
  - **RWA/(assets + off-balance sheet credit equivalents)**

the Z-score (Beck, De Jonghe, & Schepens, 2011; Beck & Laeven, 2006; Boyd & Graham, 1986; Boyd & Runkle, 1993; Garcia-Marco & Roblez-Fernandez, 2008; Hannan & Hanweck, 1988; Hesse & Cihák, 2007; Laeven & Levine, 2006; Maechler, Srobona, & Worrell, 2005), which is calculated as:

$$\text{Z-score} = \frac{ROAA + ETA}{\sigma ROAA}. \quad (4)$$

ROAA is the bank's return on average assets, *ETA* represents the equity to total assets ratio and *σROAA* is the standard deviation of return on average assets. In order to capture the changing pattern of the bank's return volatility, we use a three-year rolling time window to calculate *σROAA*.[17]

Should we trust the Z-score? Evidence from the European Banking Industry

Laura Chiaramonte, Ettore Croci, Federica Poli *

Data

- Collateral
  - not clear what this data covers

Data

- Implicit guarantee for **bail-out**
  - not clear how it was included in the model
    - (what data?)
    - SIFIs?
  - interestig to investigate the changes introduced by BRR Directive

Data

- Implicit guarantee for **bail-out**

- Broader issue:
  - Deposit guarantees

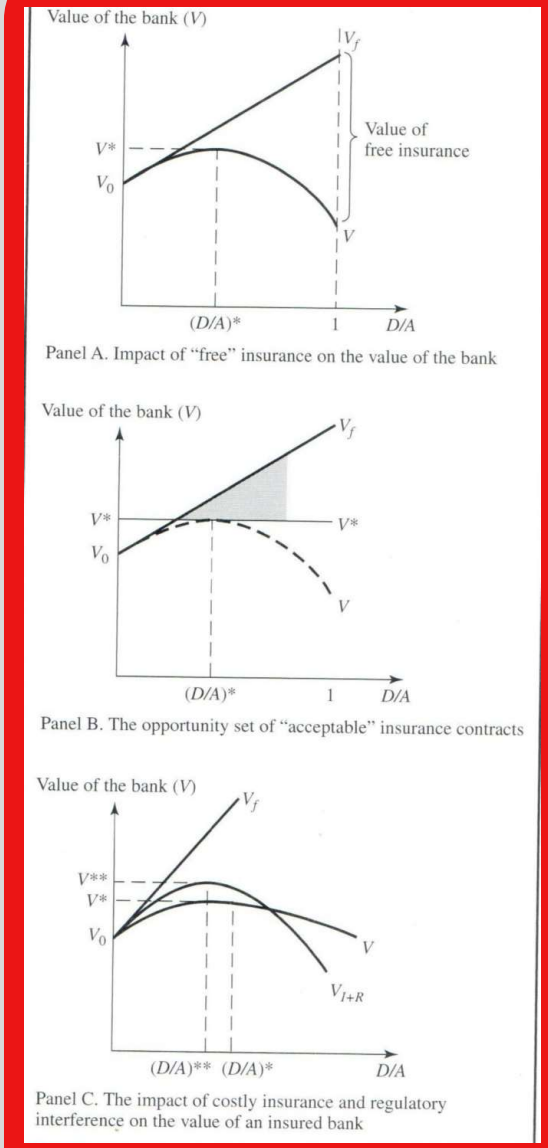
Federal Deposit Insurance, Regulatory Policy, and Optimal Bank Capital*

STEPHEN A. BUSER, ANDREW H. CHEN, and EDWARD J. KANE**

DEPOSIT INSURANCE AND THE COST OF CAPITAL

by William P. Osterberg and James B. Thomson

- note the change of the level of deposit guarantees in the EU



J.F. Sinkey Jr. , Commercial Bank Management, 6th ed., Prentice Hall, Upper Saddle River, New Jersey, 2002

UNIVERSITY OF LODZ

Issue #6:

Policy implications
Further research

UNIVERSITY OF LODZ

Policy implications

- Many interesting and potentially very important findings
  - it's worth emphasizing the findings stronger (more explicitly)
  - would be useful to formulate policy implications (show what could be the practical contribution of the paper)

Further research

- The paper answers some questions
- …and raises additional ones
  - would be practical to formulate some questions suggesting further research

monika.marcinkowska@uni.lodz.pl

UNIVERSITY OF LODZ