



On Banks and Markets after the Crisis

Jan Krahnert (Goethe Universität Frankfurt)

Conference: Achieving Sustainable Financial Stability – 01.10.2014

Transformation in banking

- What happens in banking after the financial crisis?
 - Business (model) as usual?
 - Competitive landscape redefined?
- Upcoming challenges
 - Digital age is expected to hit the industry any time soon,
 - New regulatory epoch,
 - Stress test results just days away
- How to picture the overall setting?

Chess Player,

James Northcote, 1746-1831, Worcester Art Museum



Transformation in banking: a game of chess?



- A game of chess under way,
 - Two players at the table.
 - A third person. May replace the second one, or they may join forces. May be brothers.
- Transfer to banking
 - The regulator (rights), moving, the banker-at-the-table (left), the banker-not-yet-at-the-table (shadow banker?)
 - The finance game: strategic elements – one player's best depends upon the second player's intention.
 - White figure: legal and supervisory framework
 - Black figure: institutional structure (banks, funds, exchanges)

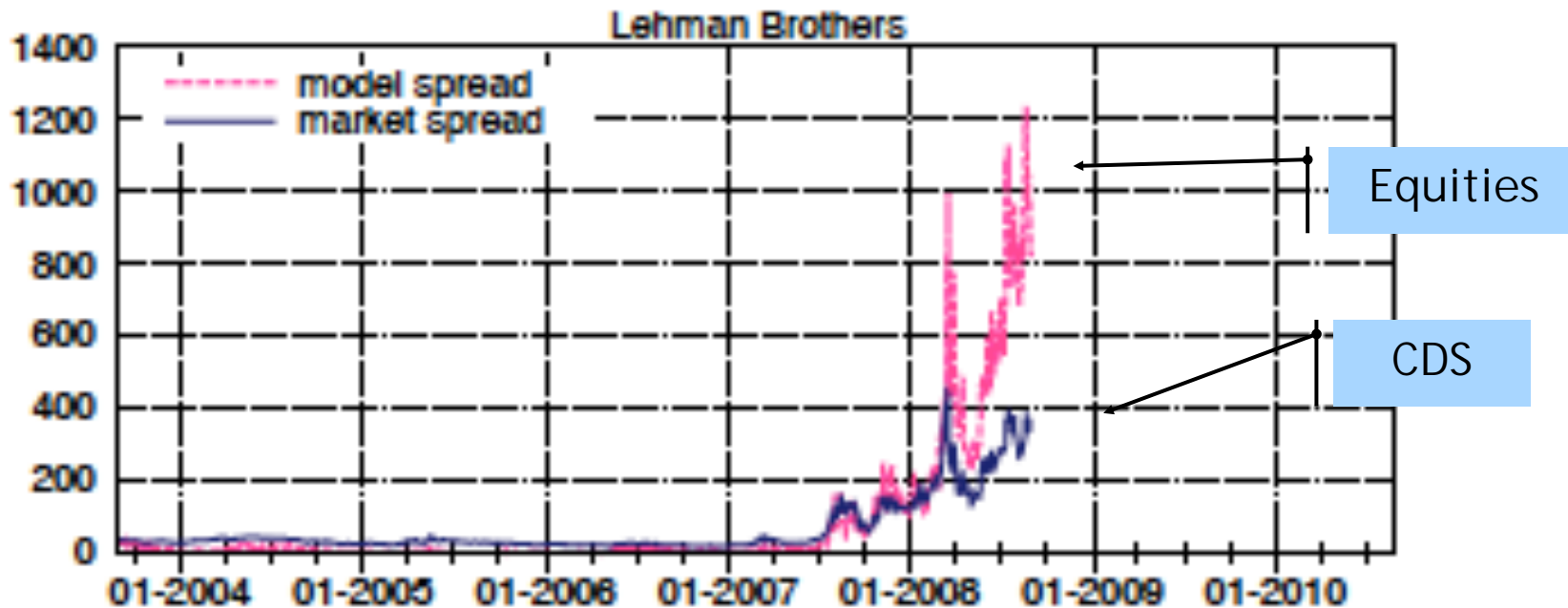
Transformation in banking: the next moves



- A. Background
- B. Understand the regulator's move
- C. Understand the bankers' moves
- D. Strategic business model design

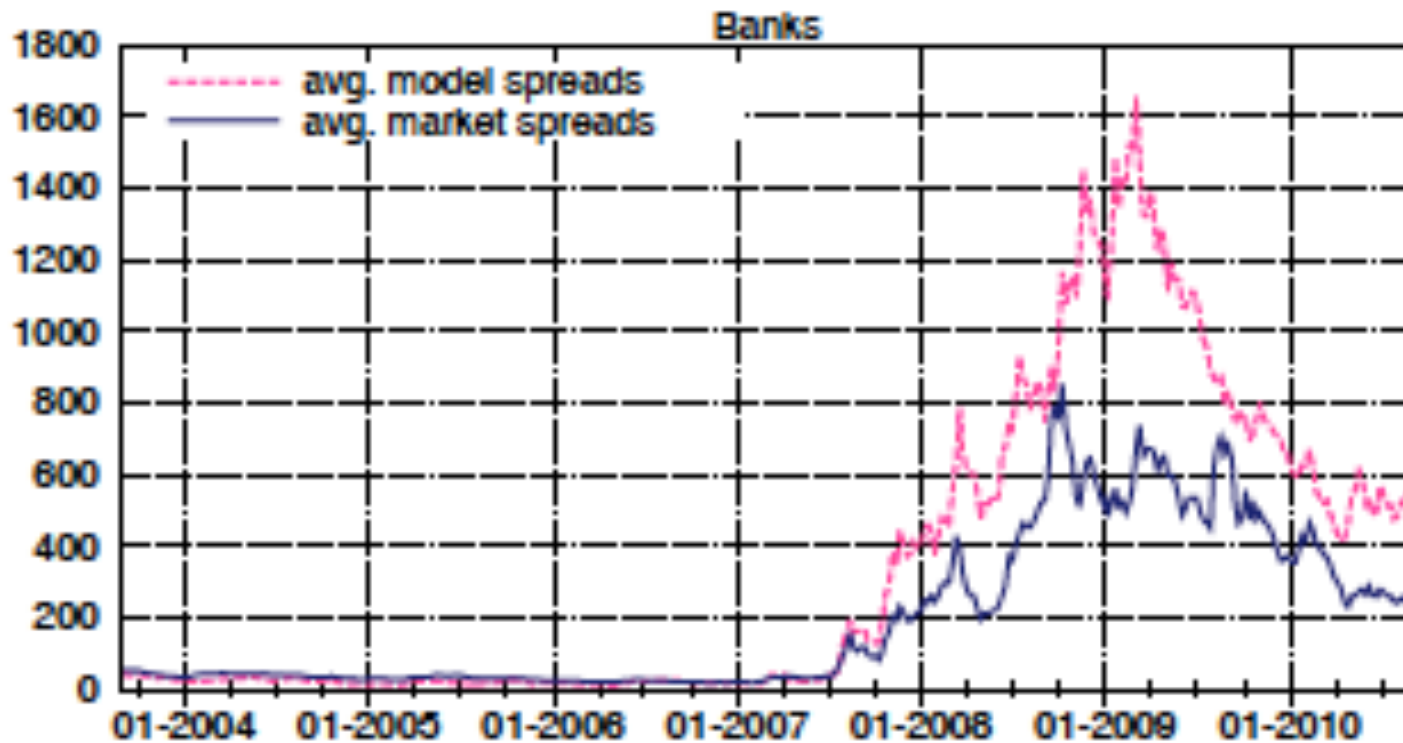
Background: Pricing of debt and equity during crisis – Lehman Brothers

(Tsesmelidakis/Schweikhard 2013)



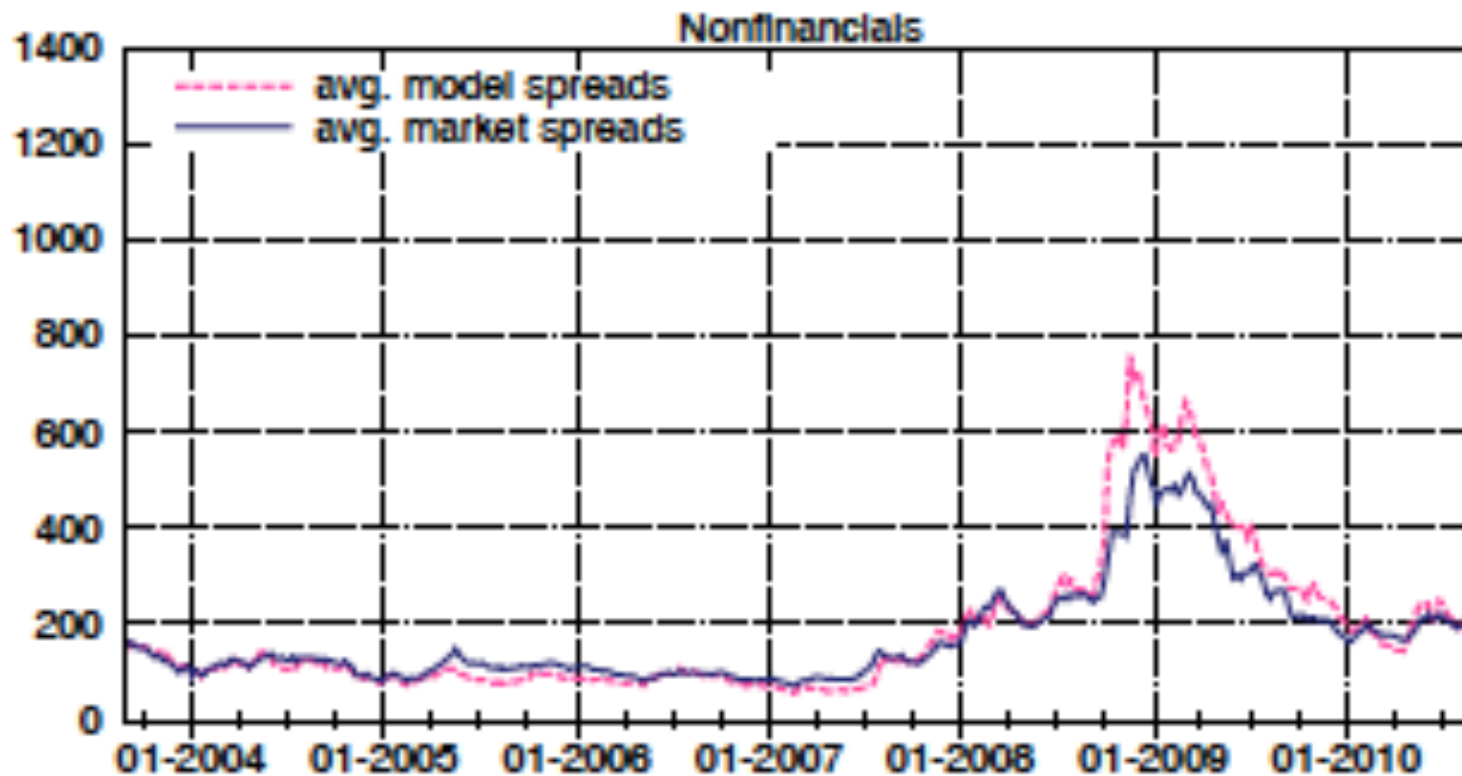
Cost of bank debt too low (US, after 2007)

(Tsesmelidakis/Schweikhard 2013)



Debt underpricing only for banks („banks are special“)

(Tsesmelidakis/Schweikhard 2013)

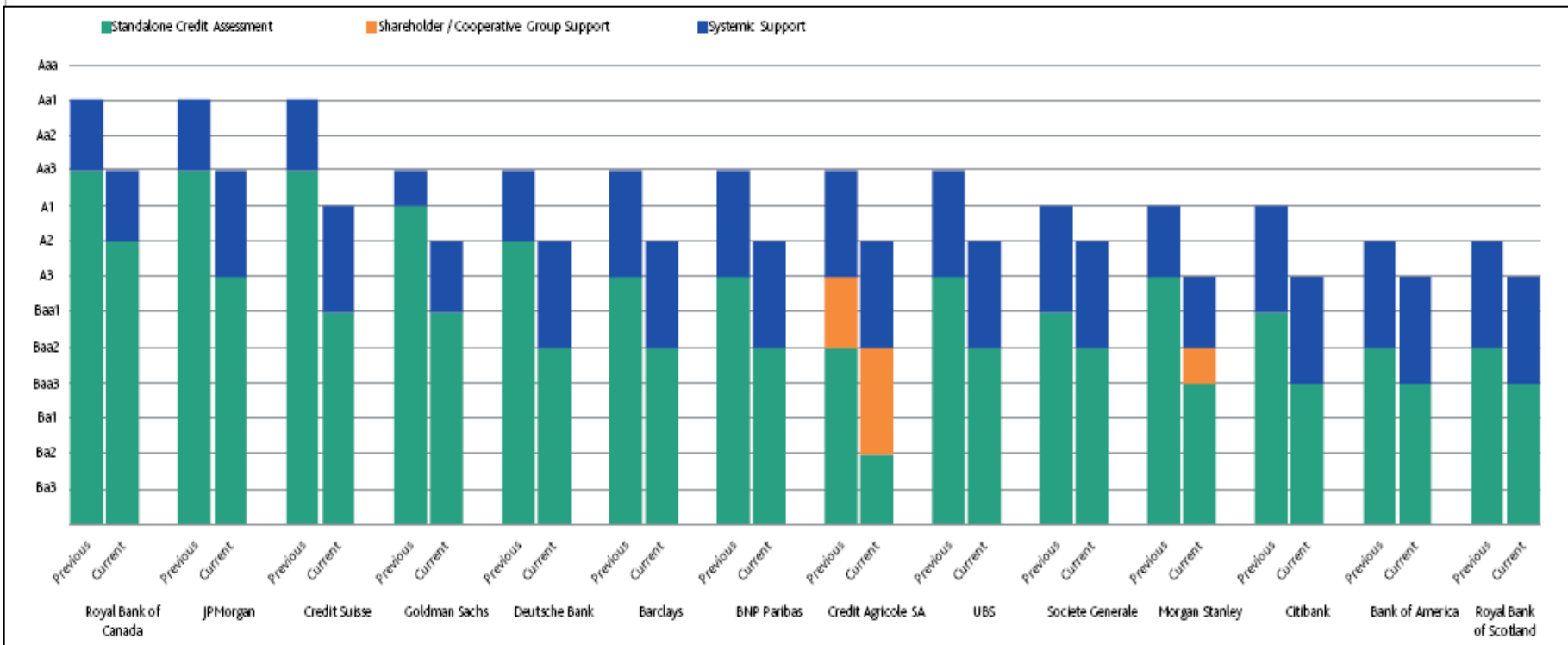


Under-pricing of bank debt and systemic risk

- Expected bailout of bank creditors is “priced-in” - markets are rational (‘efficient’).
- Prices cannot signal the rise of correlated bank default risk (systemic risk) if there are bailouts.
- Thus, a market failure
 - Costs to society of systemic risk are not considered when bankers select risk exposures.
 - Systemic risk implies bailouts.
 - Bailout expectations drive bank risk taking (end of market discipline).
 - Vicious circle.

Implicit subsidies

Credit ratings and systemic support uplift for a sample of EU and US banks (2012)



Source: Data from SNL Financial.

Systemic risk

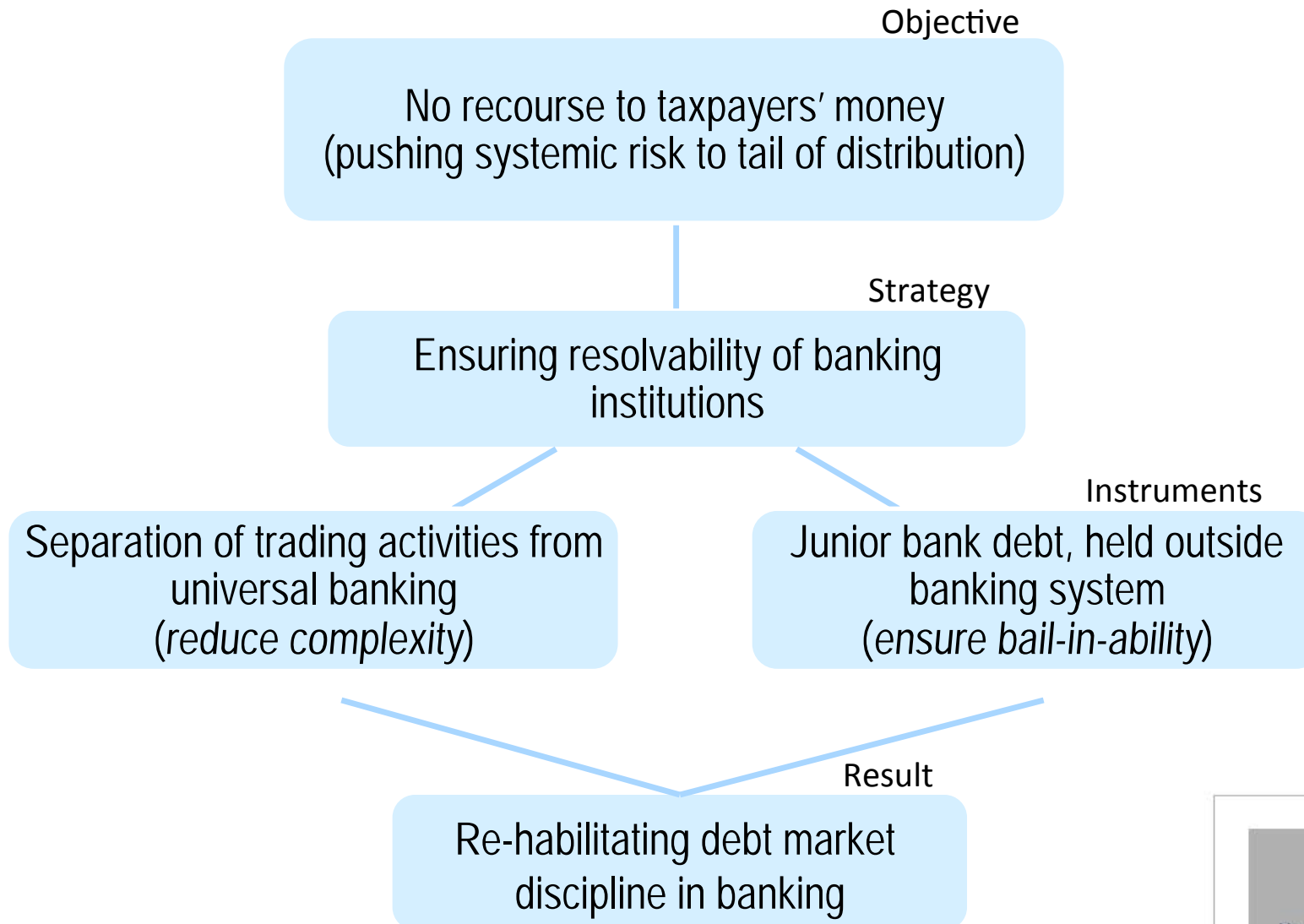
- “A risk of disruption of financial services that is (i) caused by an impairment of all or parts of the financial system and (ii) has the potential to have serious negative consequences for the real economy.” (FSB, IMF, BIS 2009).
- Systemic risk as the joint default risk of several banks emerges from correlation of asset risk, direct exposures among banks, and fire-sale externalities.
- Measuring or forecasting systemic risk is difficult.

Transformation in banking: the next moves



- A. Background
- B. Understand the regulator's move**
- C. Understand the bankers' moves
- D. Strategic business model design

Liikanen report: basic rationale



B: The regulator's implicit objective - let systemic risk be a tail risk event

- Ensure resolvability of banks.
 - Living will, ring fencing of particular activities, holding structure with SPOE.
 - Improved resolution technology: OLA (Orderly Liquidation Authority), SRM
 - Creating legal basis for fast-track resolution regime for banks (DFA; BRRD, SRMR).
 - Provisioning for required funds: bank levy, related to a measure of systemic risk contribution.

The regulator's implicit objective: let systemic risk be a tail risk event – loss absorption capacity

- Increase loss absorption capacity
 - More equity capital, partly as a macroeconomic (systemic risk-related) buffer.
 - Revival of private liability (mezzanine) through bail-in.
- Credibility is decisive for expectation formation.
- It needs to be managed.

Regulator's program is predictable

- Objective: Limit the government put.
- Instruments: Bank resolvability, loss absorption via bail-in to revive market forces (market discipline).
 - Future moves will target **credibility**.
 - E.g., for bail-in:
 - Bond design
 - Issuance structure
 - Holding restriction
 - Risk re-transfer
 - Supervisory monitoring
 - Solvency II adaptation

“If you want to have bail-in, it will not be simple”

(Mathias Dewatripont, Bank of Belgium, ULB)

- Because:
 - If left unattended, unsecured (junior) debt may become systemically relevant by migrating onto the balance sheet of financial institutions,
 - Due to market logic,
 - Or due to unobservability, and ‘pooling’ in expectation formation.
- **Earmarked bail-in debt** for greater credibility
 - Mandatory long-term debt issues.
 - Holding embargo for banks.
 - ☑ Thus, for a range of default states, bail-in is feasible without systemic risk fear.

“If you want to have bail-in, it will not be simple”

Considering issue characteristics

■ Issuance

- Staggered issues to ensure constant primary market contact.
- Total volume (e.g.) 5% of total assets, approx. € 2 trillion.

■ Coupon

- High, by senior bank debt market standards (CS example).
- Compensating investors in full for expected loss (steady state).

■ Incentives

- Risk management
- Management compensation
- Debtholder activism

“If you want to have bail-in, it will not be simple”

Considering investor preferences

■ Bond design

– Loss attribution

- Write-down – up to loss amount, following waterfall, no upside
- Conversion – swap rates respect waterfall, limited/unlimited dilution, upside.
- Limited dilution: conversion rate hierarchy is pre-defined, to allow anticipation, and proper pricing.
- --> Type II-error considerations support conversion with limited dilution.

– Trigger

- Accounting-related versus market-based (equity or CDS)
- Tradeoff: Exogenous (rather than discretionary) trigger may be manipulation-resistant, but: type I & II error.
- --> market price based (exogenous) trigger preferred by investors (?).
- Empirical: Core Tier 1/RWA most frequently used in EU (Berg/Kaserer 2014).

“If you want to have bail-in, it will not be simple”

Investor characteristics

- **Ideal investor**

- A non-bank, an institutional investor
- With long term liabilities (no liquidity provider)
- E.g., life insurance, pension fund, sovereign wealth fund, hedge fund, wealthy individuals.
- Via: Holding restrictions or RWA rules

- **Risk transfer**

- Outside banking system
- Prevent re-transfer into banking system (CDS)
- „Loss reserve for major claim” to restrict government hold-up.

“If you want to have bail-in, it will not be simple”

Task of supervisor

- **Supervisory involvement**
 - Monitor incidence (primary market), effectiveness (derivatives), and persistence (secondary market) of risk transfer.
 - Objective: ensure bail-in-ability.
 - Legal backing: holding restrictions for banks, or RWA-rules.

Turn to players on left: financial industry (and shadow banking)



- A. Background
- B. Understand the regulator's move
- C. **Understand the bankers' moves**
- D. Strategic business model design

A note on the game being played...



- Functional perspective on financial intermediation (Merton/Bodie 1995)
 - Core functions are transformational services:
 - *Origination and Risk management; Pooling of funds, through time; dealing with Incentives; Payment and Brokering services.*
 - Banks and markets perform these same functions. They are:
 - Complements at any point in time. Competitors over time.
- Regulation frames the competitive arena when there are externalities and uneven playing fields.

Traditional one-stop universal banking model is under pressure

- Bank intermediation services are increasingly being copied by combining products available on a competitive market.
- Decomposition of value chain
- Growing role of wholesale bank funding, including from 'shadow banks' (pension funds, money market funds, hedge funds, exchange traded funds)
- Direct and virtual banks emerge
- Established banks are typically part of the value chain, somewhere.

Market-based credit

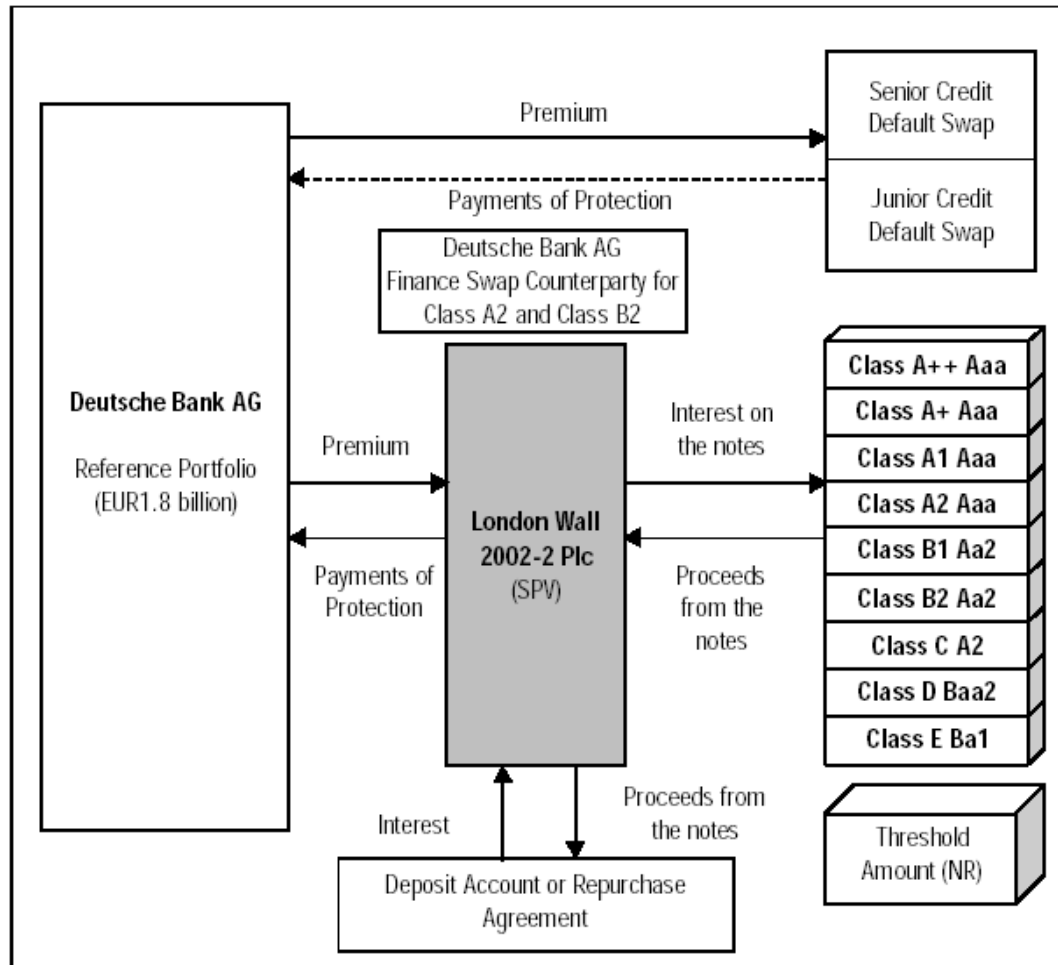
- Combining collateralized loan obligations with, e.g., money market mutual funds
- Banks are typically part of shadow banking, as they carry out *core functions* (origination of CLO portfolio, structuring, monitoring, settlement, brokering).
 - *Core functions* are not easily competed away by decomposing the value chain.
 - *Non-core functions* may be taken over by separate actors.

Non-core functions may be separated

- Payment services (Paypal, Apple i-payment)
- Securities services (trading execution outsourced to broker dealers)
- Peer-to-peer lending, equity, trading, hedging – will mostly require established banks as informed middlemen.
- Wholesale funding using securitization

Securitization example: Deutsche Bank's London Wall 2002-2 transaction

Source: Moody's New Issue Report

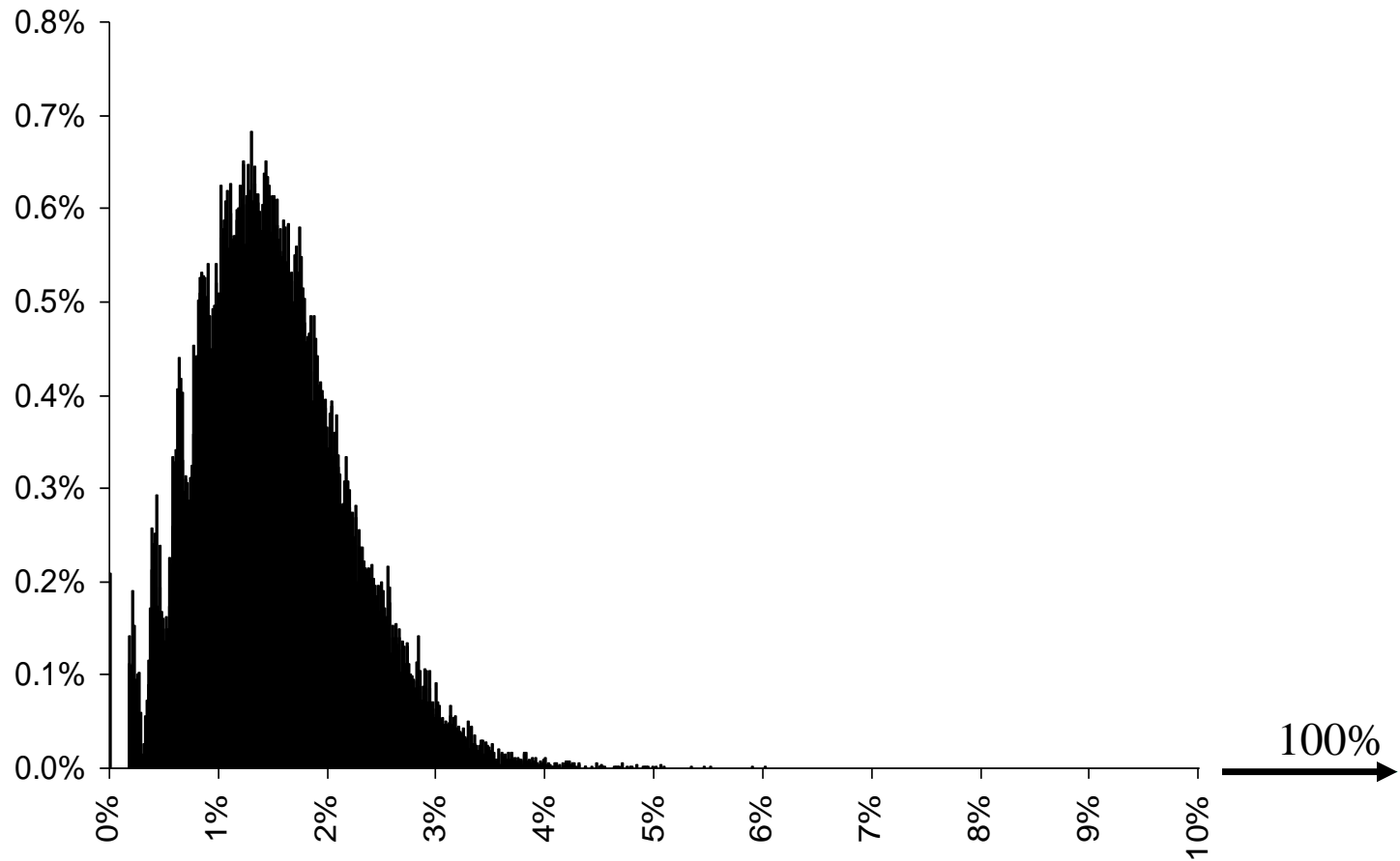


	% of Total	Spread
Senior Credit Default Swap	84.49	
Junior Credit Default Swap	4.49	
Class A++ Aaa	0.01	E + 0.30%
Class A+ Aaa	0.01	E + 0.30%
Class A1 Aaa	2.81	E + 0.65%
Class A2 Aaa	1.39	L + 0.65%
Class B1 Aa2	0.84	E + 1.00%
Class B2 Aa2	0.56	N + 0.93%
Class C A2	1.00	E + 1.75%
Class D Baa2	1.10	E + 3.75%
Class E Ba1	0.70	E + 8.00%
Threshold Amount (NR)	2.61	

Rated (97.39%)

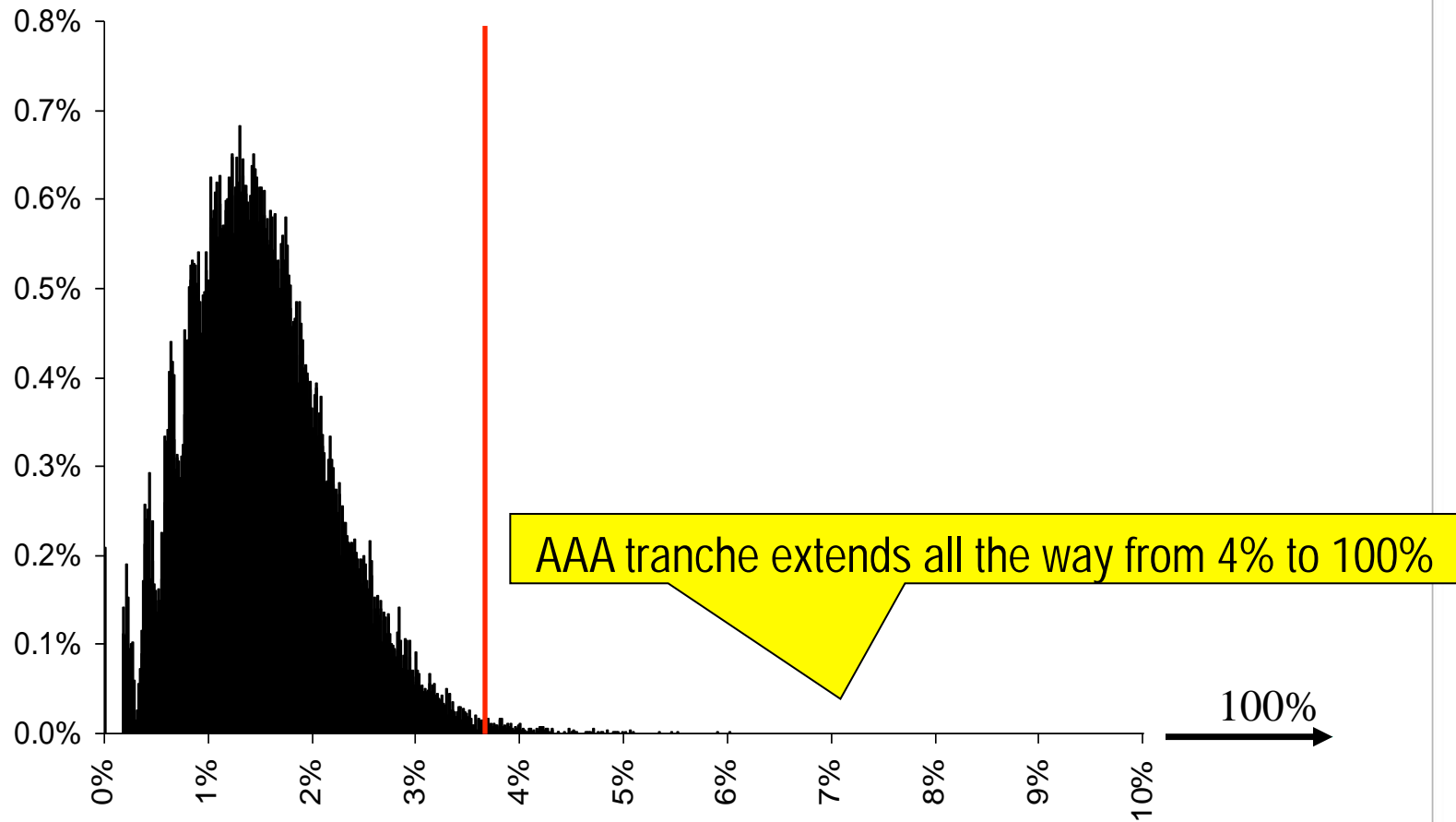
Non-rated

London Wall 2002-2: Loss distribution



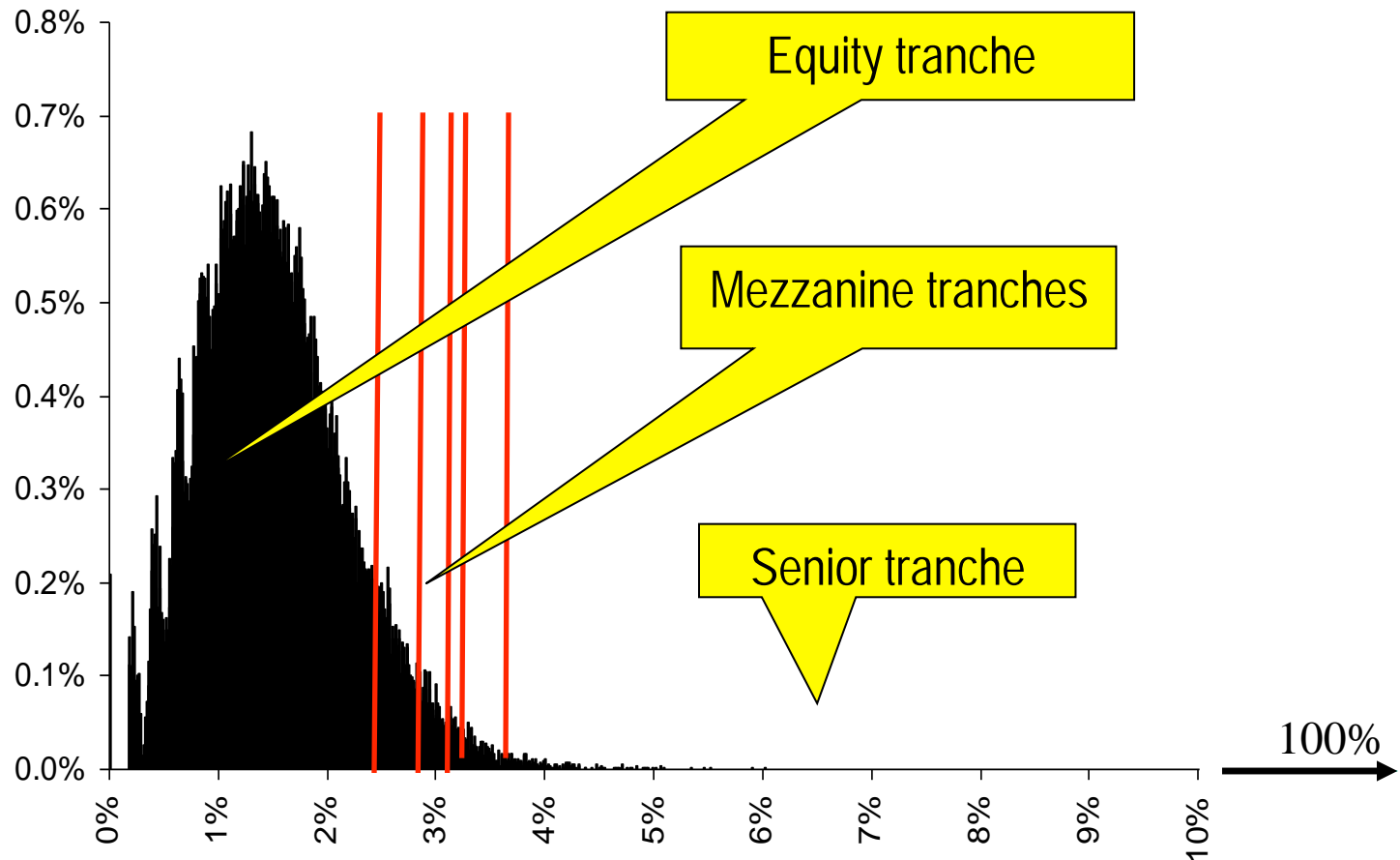
Mean loss

London Wall 2002-2: Tranching – the senior piece



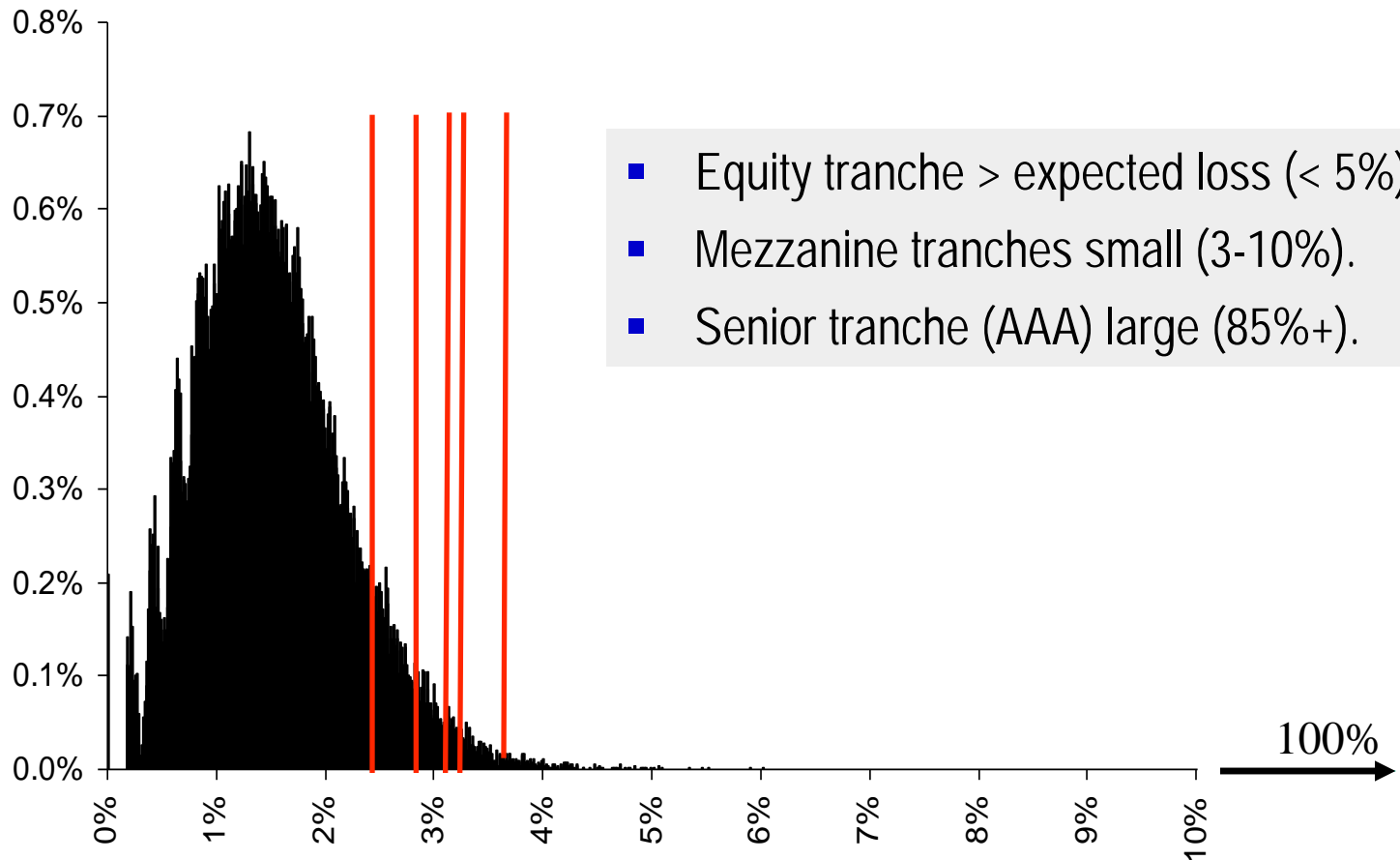
↑
Mean loss

London Wall 2002-2: Tranching – the junior pieces



Mean loss

London Wall 2002-2: Tranch sizes



- Equity tranche > expected loss (< 5%).
- Mezzanine tranches small (3-10%).
- Senior tranche (AAA) large (85%+).

Mean loss

100%



Originate-to-distribute banks may retain significant share of portfolio risk

- ABS in a sustainable banking model
 - Risk retention mitigates incentive problem („irresponsible lending“)-
 - Therefore, retain junior, or significant part of it; sell senior
 - Use issue proceeds for successive rounds of loan origination, and securitization
 - Hence, accumulation of junior tranches on balance sheet (retention requirement), senior tranches („safe assets“) are sold.
 - Retention rate determines maximum lending multiple.
 - As a result, leverage is reduced.
 - Note: Tier 1 equity *and* default risk are rising.

“Skin in the game” disciplines the banking-shadow banking link

- Important lesson from financial crisis:
 - Junior and mezzanine tranche payoff strongly affected by bank decisions.
 - Senior tranche much less so (mostly systemic risk)
 - Equity retention relevant for securitization quality.
- Policy response has focused on skin in the game, somewhat:
 - Basel II, III: max risk weight - capital deduction for equity piece.
 - EMIR: 5% ABS retention minimum (quantitative, not closely tied to first loss).

Pulling strings together

- Long-term goal of the regulator: to limit the government put.
 - Bank resolvability and credible bail-in tools for revival of market discipline in banking.
- Advance of market-based finance
 - Pushes financial architecture towards market-based credit.
 - Focusses attention on core functions of the bank.

How to reconcile the different moves of regulators and financial institutions?



- A. Background
- B. Understand the regulator's move
- C. Understand the bankers' moves
- D. Towards sustainable strategies**

Securitizations can accommodate regulator's intention

- Incentive compatibility requires retention. Thus, "capital relief" may be less than expected.
- May still be substantial under Basel II
 - If, say, 50% of first loss is retained, and if equity piece is 4% of issue,
 - then minimum required Tier 1 equity capital is 2% of gross issue volume – far less than the 8% required for the original loan book.

Will ABS program enhance corporate lending?

- Define extended leverage EL: $[\text{Book assets} + \text{Securitized assets sold}] / [\text{Capital}]$
- Through ABS, extended leverage will rise – and with it the economic use of the bank's core competencies: origination, monitoring, corporate restructuring, collection.
- Intention of the ABS program discussed among central bankers.
- Dilemma:
 - If sustainability of the program is high, then risk transfer (and 'capital relief') is low.
 - Or, if capital relief is large, there is a substantial risk of misallocation (poor lending decisions).

On the regulator's strategy

- For a sustainable strategy, the regulator will embrace shadow banking.
 - Shadow banking growth not necessarily bad news, as it may help to shield the banking system from external shocks.
 - Focus on links between banks and shadow banks.
 - Need to be resilient, to achieve sustainability (e.g., balance between risk retention and risk transfer).
- Furthermore, impact of market-based credit on systemic risk needs to be taken into consideration.

On the banker's strategy: pro-actively address the regulator's concerns about too-big-to-fail

- Business models and structural reform, from the functional perspective of intermediation.
- Reframing, and addressing the 4 key concerns:
 - ✧ Interconnection and systemic risk rather than size.
 - ✧ Resolvability rather than compensation.
 - ✧ Segment specific funding costs rather than return on equity.
 - ✧ Bail-in ability rather than internal models/RWA.
- How to achieve?

Re-evaluate core competencies

- Discuss alternative structural set-ups, addressing the **4 key concerns** (interconnection and systemic risk, resolvability, segment-specific funding costs, and bail-in ability).
 - **TBTF institutions:** what are real costs of decomposing integrated banks in a set of distinct, resolvable institutions (e.g., holding structure)?
 - **Publicly owned institutions:** what are costs and benefits of consolidating with a common TLAC, a real bail-in facility, SPOE?

In a new equilibrium, with govt put tiny, profitability will be up for accommodating institutions.



James Northcote, 1746-1831, The Chess Players, Worcester Art Museum

Thank you for your attention

HOUSE OF
FINANCE



Goethe University | House of Finance
Grüneburgplatz 1 | 60323 Frankfurt am Main
Phone +49 69 798 30080 | Fax +49 69 798 30077
info@safe-frankfurt.de | www.safe-frankfurt.de



LOEWE

Exzellente Forschung für
Hessens Zukunft

References

- Bluhm, M., Krahenen, J.P. (2014): Default risk in an interconnected banking system with endogenous asset markets, Journal of Financial Stability.
- Bluhm, M., Faia, E., Krahenen, J.P. (2014) ; Monetary Policy Implementation in an Interbank Network: Effects on Systemic Risk, SAFE Working Paper 46
- Bluhm, M., Faia, E., Krahenen, J.P. (2013); Endogenous bank networks, cascades, and systemic risk, SAFE Working Paper 12.
- Krahenen, J.P. (2013); Rescue by regulation: Key points of the Liikanen Report, SAFE Policy Center White Paper 9.
- Krahenen, J.P., Rocholl, J. (2013); „Designing the funding side of the Single Resolution Mechanism (SRM): A proposal for a layered scheme with limited joint liability“ SAFE Policy Center White Paper 10.
- Issing/Asmussen/Krahenen/Regling/Weidmann/White (2009); New Financial Order: Recommendations by the Issing Committee, Frankfurt/Berlin [Preparing the G-20 London Summit]
- Franke, G., J.P. Krahenen (2009); The future of securitization, in: Prudent lending restored: Securitization after the mortgage meltdown, 2009 (Eds. Fuchita Y., Herring J., Litan E.; Brookings Institution), S. 105-161.
- Franke, G., Krahenen, J. (2007); Default Risk Sharing between banks and markets: the case of collateralized debt obligation. Carey, M. and R. Stulz (Eds.) Risks of Financial Institutions, National Bureau of Economic Research, Chicago University Press, pp. 603-634 (also: NBER working paper 11741).
- Krahenen, J., Wilde, C. (2007); CDO and systematic risk: why bond ratings are inadequate, Working Paper CFS
- Hänsel, D., Krahenen, J. (2007); Does credit securitization reduce bank risk? Evidence from the European CDO market, Working Paper CFS.

Bailout expectations drive bank risk taking

- Recent studies have shown that changes in bailout expectations affect debt prices, and as a consequence, alter bank risk exposures. E.g.,
 - US: Acharya/Anginer/Warburton (2014); “The end of market discipline? Investor expectations of implicit government guarantees”: Only large bank bond spreads do *not* respond to risk changes.
 - Germany: Gropp/Gründel/Güttler 2013; “The impact of public guarantees on bank risk taking”: Banks losing government guarantees (post 2001) reduced credit risk.