Deutsche Bank
Risk

Managing a bank under multiple regulatory constraints

Jahreskonferenz Risk Governance, Universität Siegen

Passion to Perform

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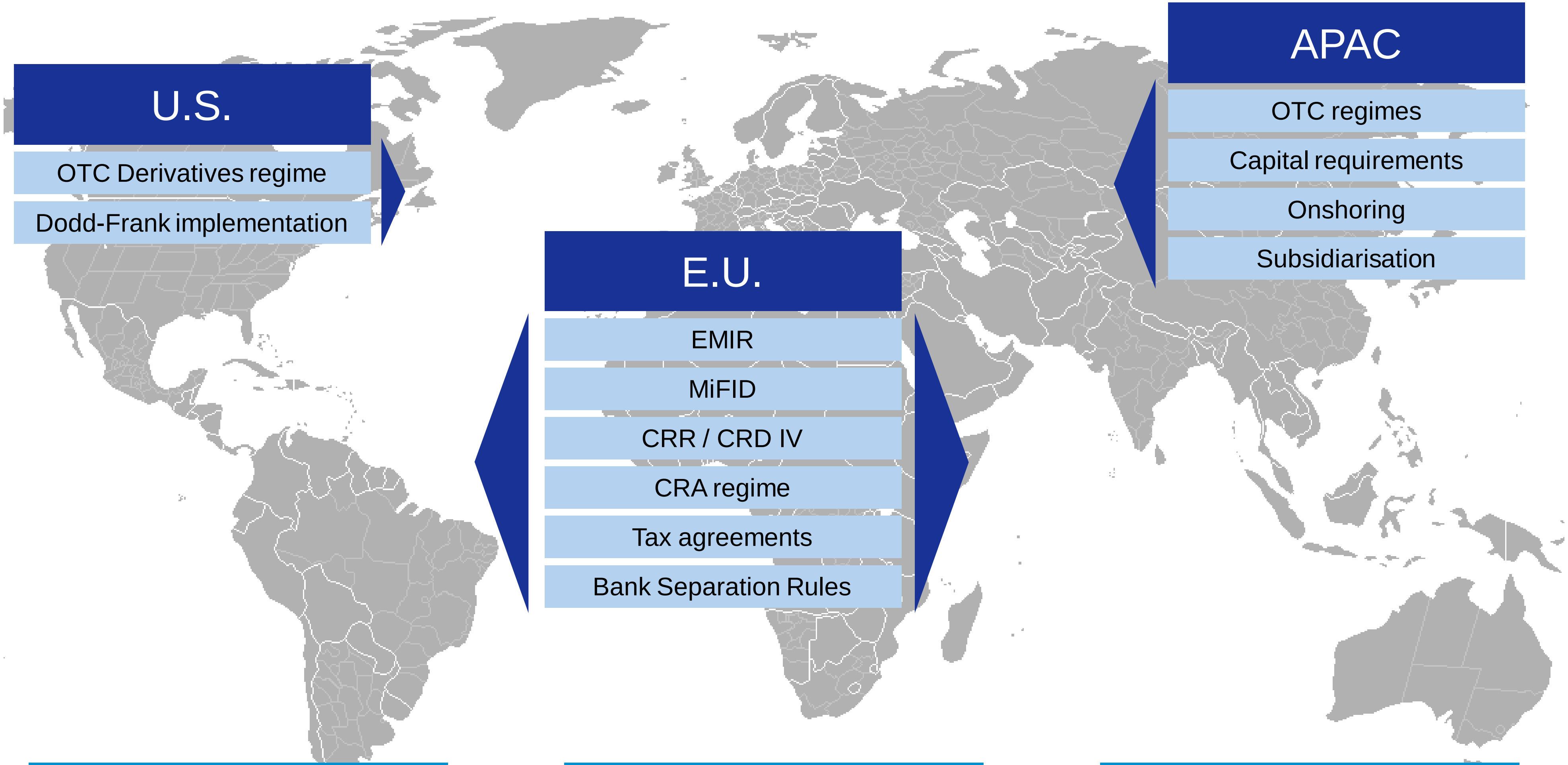
Agenda

Key regulatory developments targeted to solve key problems…



Financial stability?

Level playing field?

Support economic growth?

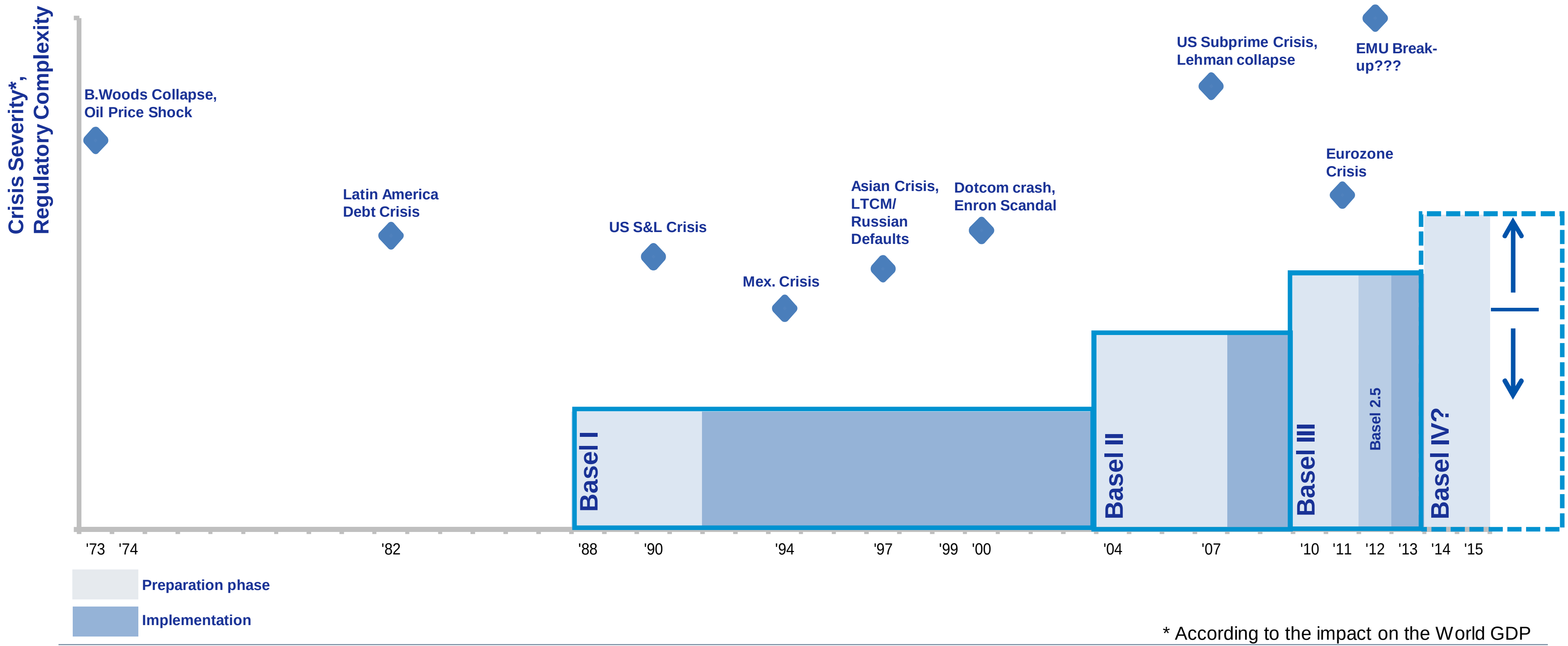
... add further complexity to bank management...

Modest regulatory scrutiny in the 1970's & 1980's ...

Despite Bretton Woods collapse and numerous (smaller) crises

Followed by exponential growth of Basel

Accelerated by more frequent situations of financial stress with growing order of magnitude



* According to the impact on the World GDP

… and come with many requirements

EU wide Basel implementation process

Capital Requirements Directive (CRD 4) and Regulation (CRR)

European Commission

Approval

CRD 4, CRR

Approval

EU Parliament* | European Council**

CRR is directly applicable
CRD 4 will be implemented by national legislators

EBA Technical Standards

European Banking Authority (EBA)

Development

Technical standard

Approval

Commission

Technical standards approved by Commission become **binding law** complementing the CRR

EBA Guidelines

European Banking Authority (EBA)

Development

Guideline

Implementation

National legislator

Guidelines **implemented by national legislators** based on "comply or explain"- principle

Becoming effective 1 January 2014

>> 100 technical standards and guidelines

* Economic and Monetary Affairs Committee ** 27 Member State Ministries of Finance

Basel III arriving shortly…

Revised definitions of capital and leverage ratios

Tighter capital definition

$$\frac{\text{(Core) Tier 1 Capital}}{\text{RWA}} \geq X\%$$

Key drivers:

- Increased scope of prudential filters and deductions from Core Tier 1 (e.g. stakes in financial entities, deferred tax assets, net pension assets)
- Increased RWA for counterparty credit risk
  - Credit Valuation Adjustment (CVA)
  - Higher / new capitalisation requirements for large & unregulated FI and central counterparts (CCP)

Minimum:

- Increased minimum ratios plus buffers
- Phase-in from 2014
- Current market focus: fully loaded

Introduction of leverage ratio

$$\frac{\text{Tier 1 capital}}{\text{Total Assets + Off-balance sheet items}} \geq Y\%$$

Key drivers:

- Derivatives (with regulatory netting + add-on)
- Off-balance sheet items (e.g. letters of credit, trade finance guarantees, commitments)
- Repos / SFT netting
- Term sheet of additional Tier 1 issuances

Minimum:

- Observation period from 2015-2017
- Review until YE 2016: re-calibration and decision of introduction of a Pillar 1 requirement in 2018
- Current market focus: fully loaded adjusted

Technical details still under discussion

... but still bearing significant technical uncertainties

New Liquidity Ratios

Liquidity Coverage Ratio (LCR)

$$\frac{\textbf{Stock of high quality liquid assets}}{\textbf{Net Cash outflows over a 30-day time period}} \geq 100\%$$

— Survival of an acute liquidity stress over 30 day time horizon

Key drivers:

— Narrow definition of liquid assets

— Rigid treatment of FI balances

— Additional funding for committed facilities, ABCP conduits, collateral, etc.

Timeline:

— Phase-in from 2015 to 2018 (subject to national discretion)

— Details to be specified in 2014

Net Stable Funding Ratio (NSFR)

$$\frac{\textbf{Available amount of stable funding}}{\textbf{Required amount of stable funding}} \geq 100\%$$

— Required amount of stable funding over 1 year time horizon

Key drivers:

— Loan book is the single biggest driver

— Substantial term funding requirements on trading assets other than govt. debt

— Term funding requirements for undrawn committed facilities

Timeline:

— Review until YE 2016: calibration and decision of introduction of a Pillar 1 requirement in 2018

Parameterization not yet finalized

Agenda

Basel III impact on individual business lines

Investment Banking hit hardest

Capital Demand

- Significantly higher RWA for OTC derivatives and traded default risk
- Trading book securitization incl. correlation trading become uneconomical
- Risk weights increase for transactions with large and unregulated financial entities (Hedge Funds)

Capital Supply

- Market making activities will suffer on higher capital cost due to potential funding requirements
- Higher levels of prudential filters and capital deductions

Leverage

- De-recognition of full balance sheet netting (CEM only allowed) adds to pressure on OTC derivatives business

Liquidity

- Issuers of financial entity bonds will need to find new investors as banks will no longer be willing to hold each other's paper
- Profitability of cash trading will be driven down by the higher funding requirements

Impact on selected products

Derivatives	**Significantly higher RWA / capital costs**
	Collateralised trading less incentivised due to CVA charge
	Conservative CRD IV exposure measure
Repos	**Additional margin requirements depending on liquidity of posted assets**
Trading Inventory	**Higher long-term funding requirements** **Securities of financial entities at significant disadvantage**
Securiti-sations	**Higher RWA** **Limitations on structuring abilities**

Basel III impact on individual business lines

Corporate / Commercial Banking needs higher margins

Capital Demand

- Risk weights increase for transactions with large financial entities, e.g. in trade finance
- Structured finance will be effected through embedded derivative components suffering under higher exposure measures and capital charges

Capital Supply

- Rise of corporate lending margins result in a shift from borrowing to bond issuance as a source of a credit

Leverage

- Specialized public finance businesses and units focusing on off-balance sheet business constrained

Liquidity

- Incentive for corporate banking business to concentrate on customers from whom they can also collect “good” deposits

Impact on selected products	
Loans	**Low RWA instruments hit hard by leverage ratio** **Products for financial entities hit by higher risk weights**
	NSFR incentives for shorter term lending
Irrevocable Commitm.	**No more free (leverage ratio) ride for off-balance sheet items**
Public Finance	**Not viable as standalone business model with current margins**
Deposits	**“Good” vs “bad” deposits** **Potential leverage constraint**

Basel III impact on individual business lines

Retail Banking pushed to low income business

Capital Demand

— No major changes

Capital Supply

— Increase in capital costs driven by higher target ratios

— Retail banking has much less flexibility regarding re-pricing, cost cutting/changes in business mix

Leverage

— Leverage ratio can put constraints on low risk business, e.g. residential mortgages

Liquidity

— Less affected by higher liquidity costs

Impact on selected products	
Consumer loans	**Relatively high risk weights**
Mort-gages	**Capital efficiency challenged under leverage definition**
Deposits	**"Good" vs "bad" deposits** **Potential leverage constraint** **Positive for liquidity ratio**

Group-wide management also gets increasingly difficult

Ambitious regulatory capital targets add instability

Transaction decisions become operationally complex

— Convoluted regulatory model landscape requires complex profitability analysis

— Some decisions (e.g., for derivatives exposure) are process dependent – not know at origination

Sudden increases in CT1 ratio requirements (e.g., EBA 2012) force short term focused decisions

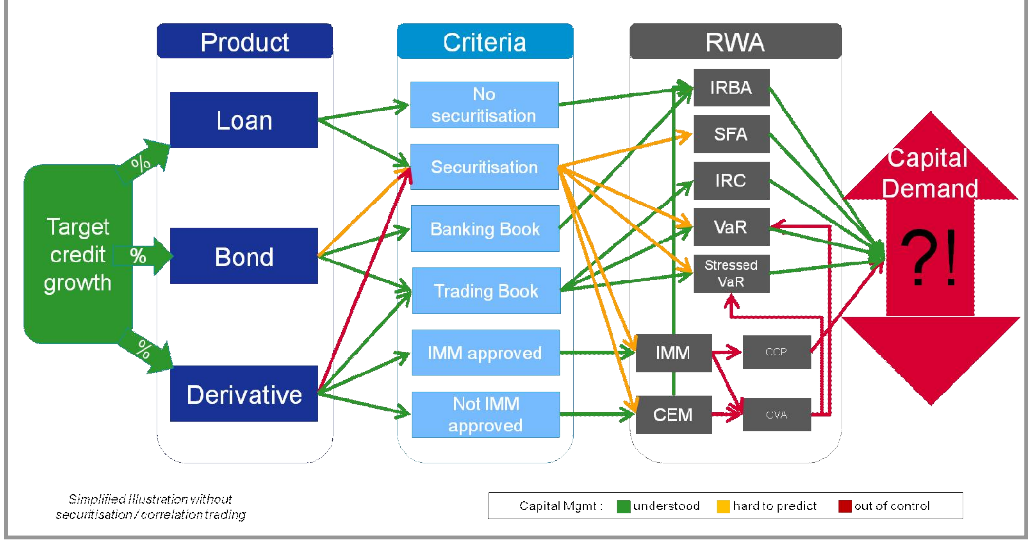
— Businesses with RoRWA below CT1 ratio target are

  — Short term CT1 ratio destructive and hence better disposed of in need

— Time horizon is key:

  - Any business with positive earnings and stable RWA consumption will ultimately help grow CT1 ratio

Managing Risk and Capital under Basel III



Business Return on RWA vs. Group CT1 ratio build

$$\frac{C+\Delta E_i}{R} > \frac{C}{R-R_i} \Leftrightarrow \underbrace{\frac{\Delta E_i}{R_i}}_{RoRWA_i} > \underbrace{\frac{C}{R}}_{CT1\%} \cdot \underbrace{\frac{R}{R-R_i}}_{\approx 1}$$

C	Group CT1 Capital
R	Group RWA
ΔE_i	Earnings contribution in business unit *i*
R_i	RWA consumption of business unit *i*

Agenda

Simulating Basel III business model dynamics

Quantitative approach to get insights into the future of banking

Basel III touches key areas relevant for bank management in individual ways:

— Capital

— Liquidity Buffer

— Funding Mix

— Leverage

Common "divide and conquer" approach of optimization of above categories within their silos does NOT work.

— Interactions between the silos is too strong

— Even iterative attempts to optimize one category after the other for several cycles are prone to fail

Holistic approach needed

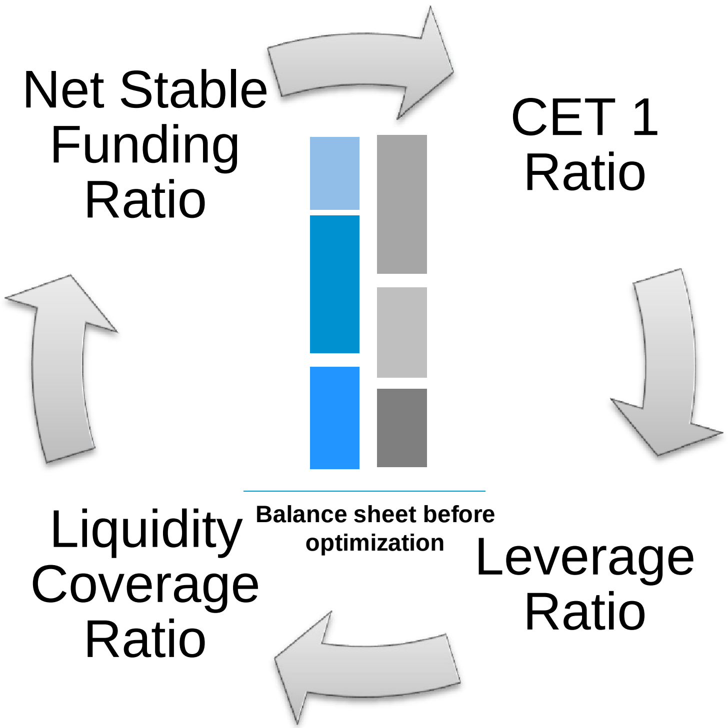
Simulating Basel III business model dynamics

Analysing and optimising the future balance sheet

Assumptions

- Assets and off b/s exposure with risk cost, risk weights, margins
- Liabilities with funding cost and impact on LCR and NSFR
- Cost functions
- Tax Rates
- Elasticity constraints on b/s positions

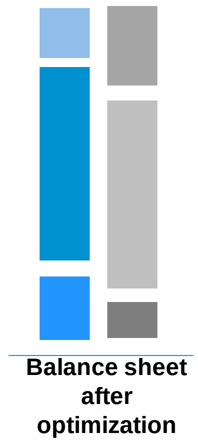
Business Model Constraints



Optimization Model

- **Simultaneous asset and liability composition**
- **Compliance with internal and external constraints**
- **Non-linear optimization**

Maximize RoE



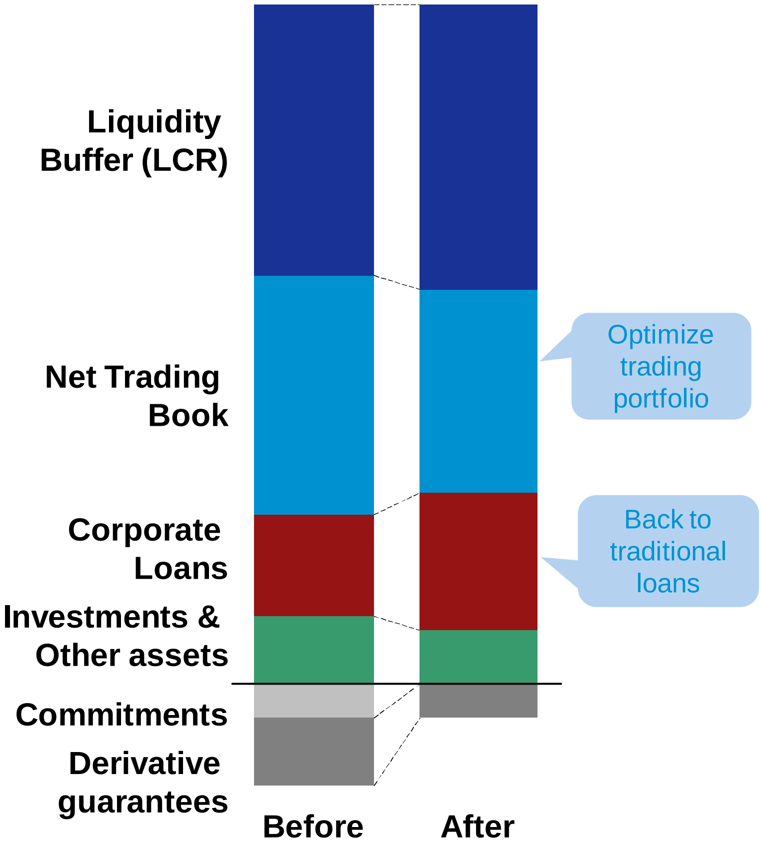
- Viability of business model
- Directional target balance sheet composition

Indicative

Investment bank – hard restructuring

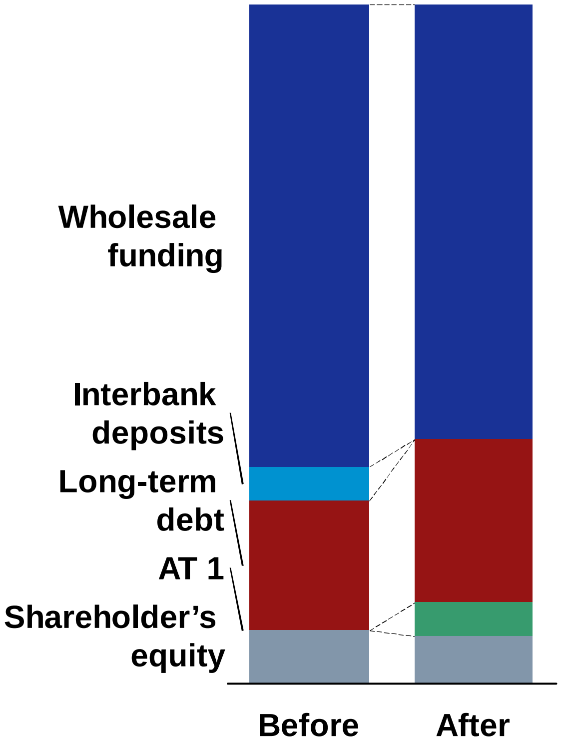
Assets

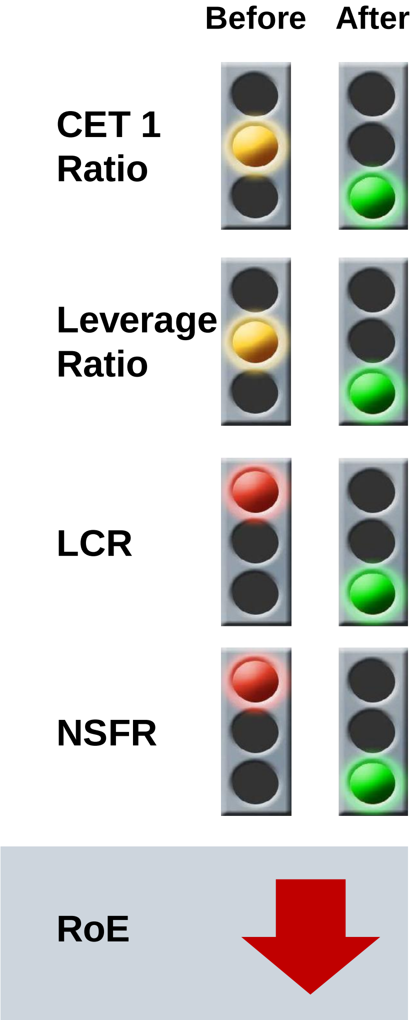
- No retail business assumed
- Wind-down of trading business and derivative positions in off-balance sheet to meet leverage ratio requirements



Liabilities

- Increase Additional Tier 1 to enhance leverage / CET 1 ratio
- More long-term debt needed due to NSFR
- Decrease interbank deposits to increase LCR



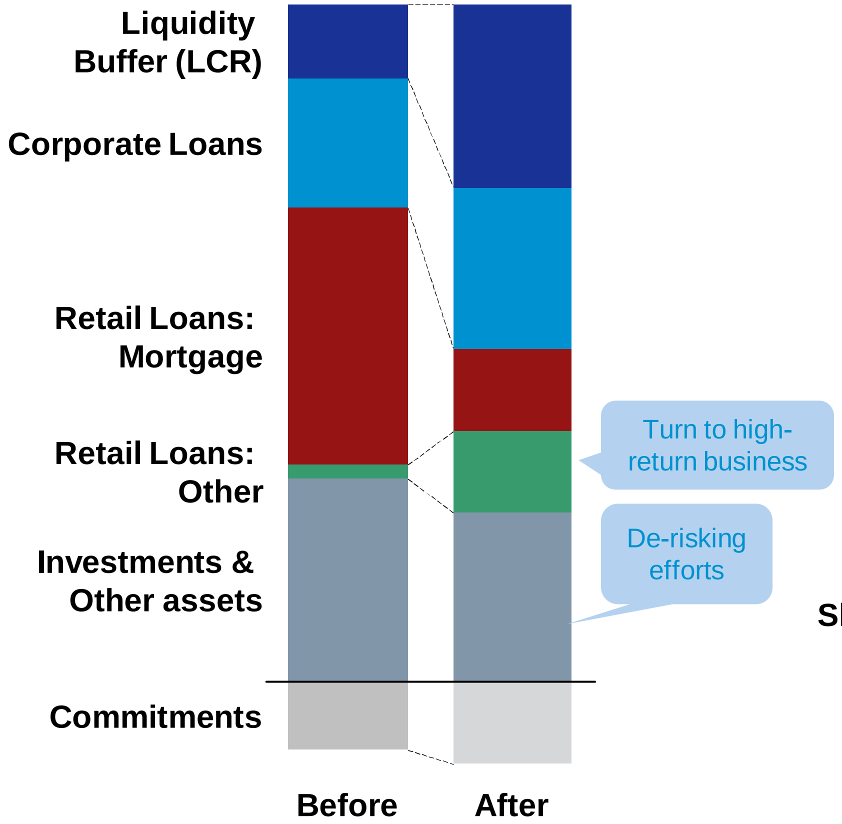


Indicative

Retail bank - performance adversely affected

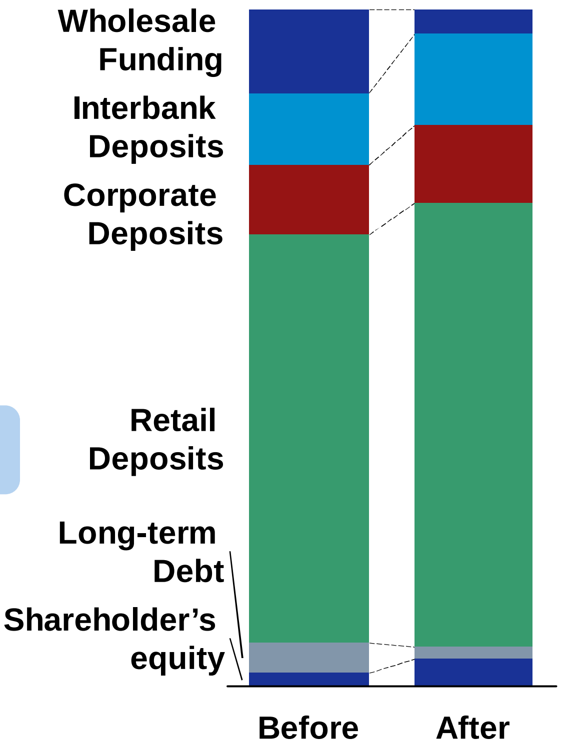
Assets

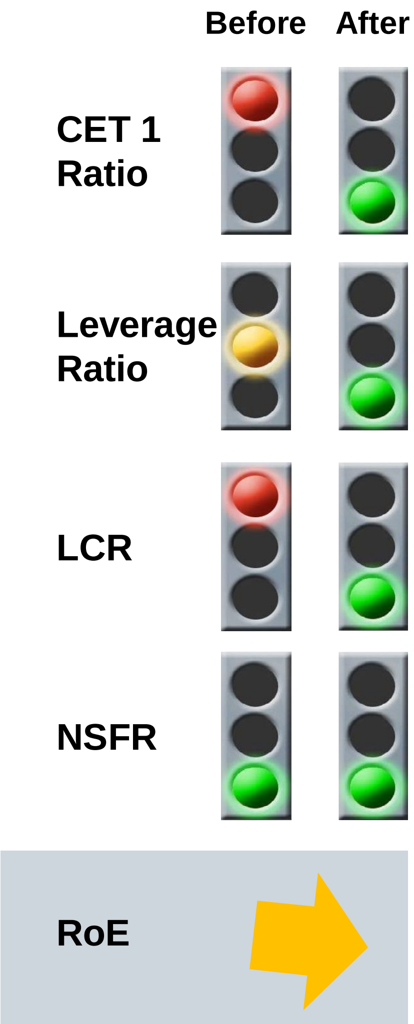
- Growth in trading business excluded in optimization
- Low return by holding liquidity assets partly compensated by increase in commitments, corporate and consumer loans
- Low return from mortgage business eliminates its attractiveness in NSFR



Liabilities

- Capital raise due to low CET1 and leverage ratio
- Advantages in deposits compensate the negative NSFR impact from the decrease of long-term debts

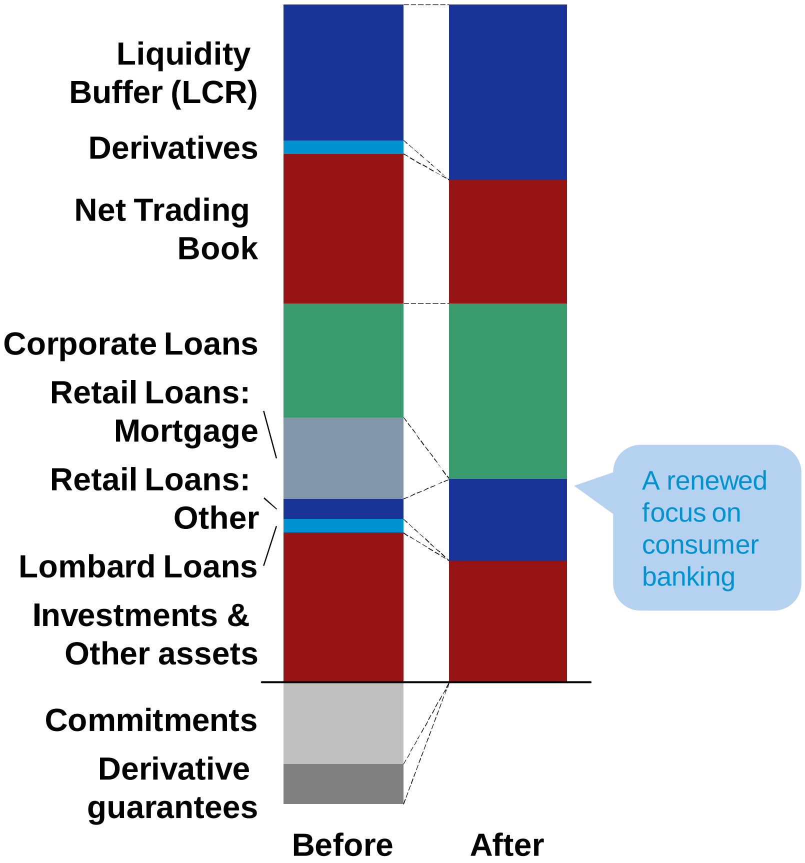




Universal bank – most flexibility

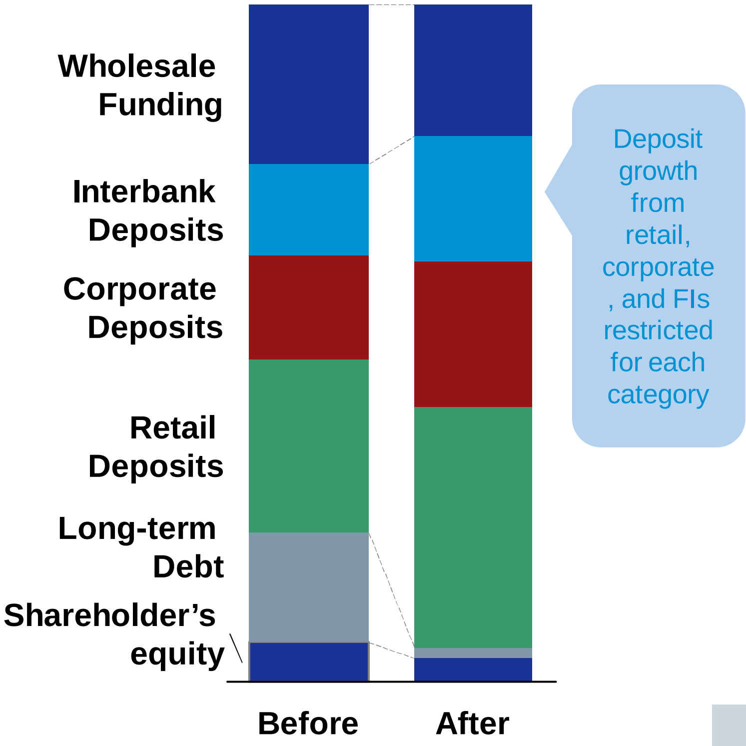
Assets

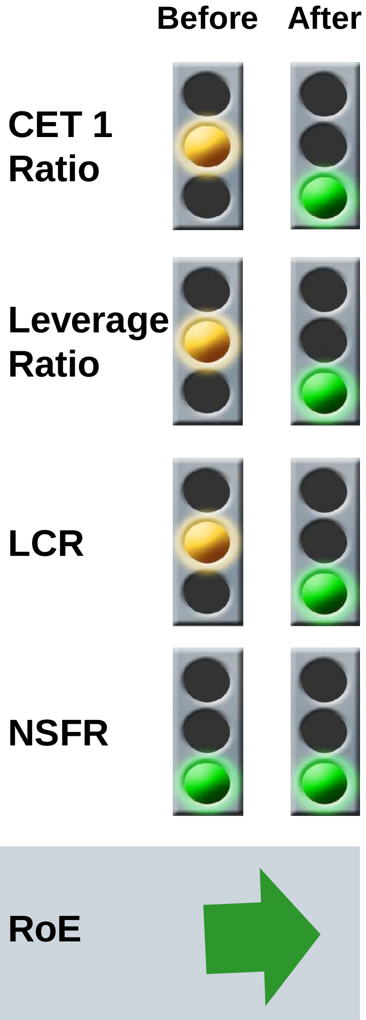
- Growth potential in all business areas in optimization
- Higher return needed to retain mortgage and lombard loans
- Eliminating off-balance sheet positions as an effort to be LCR and leverage ratio compliant



Liabilities

- Diversified deposit base makes it possible to replace the expensive long-term debt funding without constraints from NSFR

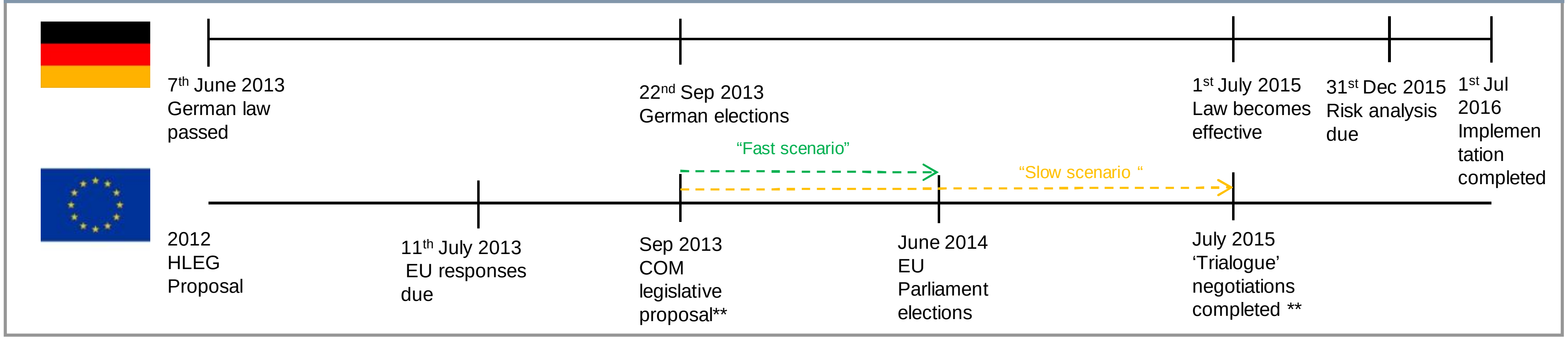




But the Universal Bank model is under threat

Is banking separation the right approach to financial stability?

“Liikanen” implementation progresses at different speeds



Our simple holistic analysis shows that

— Cross dependencies of key Basel III drivers may significantly push down performance of stand-alone business models

— The universal bank model appears to be best geared to sustain the requirements from new, directionally differing risk metrics

Forcing universal banks to separate parts of their business would

— Add multiple additional constraints

— Be detrimental to bank profitability and thus recoverability