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### Fundamental Review of the Trading Book

Perspectives on requirements and impact 3<sup>rd</sup> Dec 2015 by Thomas Obitz

# The Fundamental Review of the Trading Book requires to deal with higher capital demands and operational change

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- The Fundamental Review of the Trading Book (FRTB) is a regulation which reacts to actual and perceived issues in market risk practices in banks
- Four quantitative impact studies (QIS) have reviewed the changes in capital demand and found considerable increment in participants by up to 800%
- The regulation is planned to go live in 2018. Rules are supposed to be finalized by end of 2015
- Banks need to assess their options under the new regime, but also get their risk operating model and infrastructure ready for new requirements
- This paper highlights critical requirements and levers for banks to deal with the requirements of FRTB

Increased capital demand

- The move to expected shortfall (ES), the default risk charge (DRC) and the charge for non-modellable risk factors (NMRF) increase market risk capital requirements by 74% at average, with peaks up to 800% (QIS 3<sup>1</sup>)
- The capital under QIS 4<sup>2)</sup> revised standardized approach is 4.2 times higher than today, with 47% as a residual risk add-on (RRA) which is not risk sensitive and may act as a tax on volume

Dramatic cliff effects for Standardized Approach

- The gap between internal model (IMA) and revised standardized approach (SA) is between 2.1 and 4.6 depending on asset classes<sup>2)</sup>
- A majority of banks and desks within the banks failed at least one of the P&L attribution tests, potentially excluding part of the business from IMA<sup>2)</sup>
- Less liquid risk factors are facing hurdles from modellability or may become non-modellable for purely statistical reasons

Additional operational requirements

- Demands for quality and consistency of risk data between front office and risk increase dramatically and have direct financial impact by driving modellability
- Presumption of trading or banking book for certain instruments, with high hurdles and process complexity to change designation
- Internal risk transfers are restricted
- Internal Model Approval processes are becoming more complex

- Banks have to act at multiple levels
  - Implement the operating model changes required by the new market risk framework
  - Optimize existing capabilities, such as model consistency, the quality of risk processes and of risk data
  - Take strategic decisions on profitability of business lines
- · This paper
  - Analyses the demands of the regulation, identifies their areas of impact and suggests actions.
  - Identifies a structure for addressing the change
  - Reviews synergies with and dependencies on other regulatory change initiatives

<sup>1)</sup> Fundamental Review of the Trading Book – Interim Impact Analysis November 2015 ("QIS3"), http://www.bis.org/bcbs/publ/d346.pdf

<sup>2)</sup> Key findings of the Joint Associations' FRTB QIS Analysis ("QIS4"), https://www.iif.com/publication/regulatory-report/key-findings-joint-associations-frtb-qis-analysis

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#### The FRTB is a major revision of the market risk framework

- The Fundamental Review of the Trading Book (FRTB) is a major overhaul of the complete market risk framework introduced by Basel 2, 2.5 and 3. Further papers published by the Basel Committee introduce related changes in the CVA framework and on interest rate risk in the banking book.
- These regulations imply several interrelated changes which increase capital requirements considerably, i.a. through non-modellable risk factor charges, longer holding periods, desk level risk measurement and the exclusion of securitization from modellability. Residual risk add-ons were introduced with QIS 4 and have almost doubled trading book capital. Requirements appear volatile, closing them in 2015 for a 2018 go-live will be a challenge.
- Four quantitative impact studies have identified substantial increases in capital requirements for the trading book, at average by a factor of 4.2 under SA (QIS 4).

Area	Change	Typical challenges
Modellability and revised models-based approach	<ul> <li>More robust IMB approval process, model approval at desk level</li> <li>Model performance assessment - Enhanced backtesting, P&amp;L attribution</li> <li>Strict requirements for data availability</li> </ul>	<ul><li>More complex IMB approval</li><li>Data quality and availability</li><li>Capital for non-modellable risk</li></ul>
Risk Metrics	<ul> <li>Stressed calibration</li> <li>Expected Shortfall (97.5%), liquidity horizons by risk factor/ product type</li> <li>Non-Modellable Risk Factors</li> <li>Residual Risk Add-ons (QIS 4)</li> </ul>	<ul> <li>Stress period to be defined</li> <li>Capital impact</li> <li>Calculation and interpretation of ES</li> </ul>
Risk Measurement	<ul> <li>Revised standardized approach to be calculated for all positions – may become benchmark or floor</li> <li>Limitation to hedging/ diversification benefit through split correlations</li> <li>Stressed correlations for standardized models</li> <li>Reporting at desk level</li> </ul>	<ul> <li>Standardized calculations in addition to IMB</li> <li>Stressed correlations, "risk buckets"</li> <li>Gold not as FX anymore</li> <li>Production and monitoring of desk level data</li> </ul>
Risk Reporting	<ul> <li>Proposed desk level reporting and disclosure</li> </ul>	<ul> <li>Leakage of confidential information</li> </ul>
Credit Treatment	<ul> <li>Securitized products: Standardized charges</li> <li>Non-securitized products: Incremental Default Risk (IDR) Charge</li> </ul>	<ul> <li>Punitive capital charges for securitizations</li> </ul>
CVA	<ul> <li>Migration to a market implied/ risk-neutral framework (CVA paper)</li> <li>CVA still as a separate component rather than by modelling CP spread</li> </ul>	Further development from Basel III
Trading/ Banking Book Boundary	<ul> <li>Reduce permeability by stricter rules</li> <li>Reduce opportunity for arbitrage, better supervisory tools</li> <li>Presumption of trading book for certain instruments, including options</li> <li>Capital penalty for switching</li> <li>Internal risk transfers (IRT) as a limited transfer instrument</li> </ul>	<ul> <li>Potential inconsistencies between regulators</li> <li>Difficulty recognizing hedge instruments for banking book (apart from IRTs)</li> <li>Instrument taxonomy for regulatory treatment</li> <li>Booking of switching penalties</li> </ul>
Governance	<ul> <li>Trading strategy to be defined at desk level</li> </ul>	Leakage of confidential information

# The regulation impacts at a business, system and data level

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- Addressing the requirements of FRTB and related papers requires activity at multiple levels.
- Coordination between several layers of the operating model is required to achieve compliance and minimize impact.
- A coordinated approach reduces execution risk and allows to manage trade-offs.

## Organisation and product portfolio

- FRTB is going to increase capital requirements on the trading book considerably. Key
  drivers are standardized models for securitizations, longer liquidity horizons and nonmodellable risk factors.
- This will severely impact the profitability of business models in trading businesses. Some securitizations are likely to require more capital than the actual market value of the instrument.
- The industry is concerned that the impact is not completely understood either by the banks nor the regulator. The recent Quantitative Impact Study (QIS 3) still is not considered to provide sufficient granularity.
- The split correlations used in the standardized models impact the capital benefit of hedging and in some cases even disincentivise delta neutrality
- It is still unclear whether and how the regulator will react to these concerns. It is expected that securitizations considered "simple" will be treated in less heavy-handed way.

## Process, data quality and availability

- Processes for trading/ banking book designation have to be strengthened. Regulatory reassignment is possible.
- Regulatory trading desks have to demonstrate effective P&L attribution and backtesting performance to be eligible for internal modelling.
- Risk factors have to be observable frequently enough in the market to be modellable. Observation frequency drives time horizon for non-modellable stress scenarios.
- Insufficient data quality may result in desks or positions falling into standardized models

### Models and systems

- Implementation and calculation of standardized models required even for portfolios which have internal model approval
- Calculation and aggregation of expected shortfall, variable liquidity horizons
- Calculation and model performance at desk level

- Participation in QIS and own analysis to assess the impact on portfolios
- Identify reasons of non-modellability of risk factors and non-eligibility of desks
- Review desk structure to understand and isolate non-modellability and standard models
- Review product structure for non-modellable risk factors and risk factors with long liquidity horizon. Use capital requirement as a key element of product design. Identify product optimizations.
- Analyse drivers for P&L and backtesting issues. Use six sigma techniques to minimize process variability.
- Identify data quality issues. Identify opportunities for better data sourcing and upfront data cleansing processes.
- Analyse the impact of technical data quality onto the risk outputs and drive materiality driven improvements.
- Models to be implemented/ sourced
- Model performance management processes to be defined and managed
- Considerable change in front office, risk and risk aggregation systems

<sup>1)</sup> Criteria for identifying simple, transparent and comparable securitisations, Basel Committee for Banking Supervision, July 2015 © RiskTransform 2015. All rights reserved.

# Managing the overlap with other regulations can reduce project risk and reap synergies



- The interdependencies of FRTB with other regulations are largely based on three mechanisms:
  - Requirements for changes to the same processes, models, systems and data which are already impacted by other regulations (Basel 2.5/3, stress testing)
  - Requirements for implementation of FRTB (BCBS239)
  - Increase of capital requirements for the trading book together with other regulatory impact may make businesses non-feasible (MIFID II, Dodd-Frank/ Volker)
- There is a strong benefit aligning change across initiatives to reduce risk, cost and contention.



- The Volcker rule requires reporting of seven metrics at desk level. There is a strong overlap in requirements (e.g. comprehensive P&L attribution).
- However, the definition terms such as "trading account" and "desk" are not identical, and organizations have to be conscious of their internal use of the terms, specifically on global trading platforms.
- Similar control requirements between the Volcker compliance programme and the FRTB requirements, such das desk level strategy, exist.



- The Principles for effective risk data aggregation and risk reporting aim at more reliable and timely risk measurement, and the ability to better analyse and decompose exposures.
- The requirements for desk eligibility and risk factor modellability help to form a strong case for addressing data quality constraints under BCBS239.
- The transition from VaR to ES addresses a considerable theoretical concern when aggregating risk measures across the organization.
- There is a perception in the market that FRTB will form a test case for the BCBS239 rules.

Basel 2.5/ 3

- The FRTB requirements and subsequent papers change the risk framework of prior regulations considerably.
- FRTB has been positioned explicitly to address shortcomings in the risk management approaches of Basel 2, 3
  and 2.5. Drawing a realistic picture of risk in the trading book under liquidity constraints, avoiding regulatory
  arbitrage, improving comparability and increasing risk sensitivity are valid concerns.

Stress Testing

- · Stress testing is another mechanism of measuring risk.
- FRTB uses stress scenarios i.a. for measuring the impact of non-modellable risk factors and to calibrate metrics.

MiFID II, Dodd-Frank, Volcker

- Pre-trade transparency, push towards exchanges and central clearing, and constraints on proprietary trading have reduced opportunities for generating returns.
- Additional capital requirements will erode profitability further.
- The constraints on capital recognition of hedges should be reviewed against prop trading constraints.
- Many organizations are already in the process of reviewing the strategic alignment of business activities.

- Identify a common set of front office control metrics at desk level across legislations, and amend where required
- Leverage opportunity for aligning front office control frameworks
- Define meaning of key terms such as desk and trading account, identify potential gaps, and decide on mapping approach for external reporting
- Liaise with BCBS239 project teams and CD0 functions to align approaches and benefit cases
- Leverage semantic models and data flows produced as part of BCBS239 initiatives to accelerate FRTB work
- Address data quality in terms of impact on risk measures to prioritize improvements
- Leverage experience and knowledge from prior change initiatives
- Were residual activities from Basel change programmes are still unfinished, consider creating synergies
- Consider consolidated mechanisms for specification, data provisioning and evaluation of stressed scenarios to create consistency
- Liaise with strategic review programmes to raise awareness of changing capital requirements

### To deal with FRTB effectively, banks need to set up a multidisciplinary team

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- As FRTB touches several areas of trading activities, it requires involving several functions including trading (strategic and operational), risk, finance and IT
- Mobilization can be accelerated by using appropriate patterns and templates

		Key Activities	Key Participants	Outcomes
Strategy Governa		<ul> <li>Inventorise regulatory trading desks, agree target desk granularity and changes in desk structure</li> <li>Define desk level strategy (value drivers, risk factors, profitability targets, risk appetite, hedging strategies, capital allocation, limits)</li> <li>Assess feasibility under new regulation and prioritize activities</li> </ul>	<ul><li>Trading</li><li>Risk</li><li>Finance</li></ul>	<ul> <li>Assessment of trading activities</li> <li>Strategies for desks in target model</li> <li>Target capital allocation</li> <li>Transition Arrangements</li> </ul>
Operati Mode		<ul> <li>Develop target processes for model approval and bank/ desk level modellability decision, IMA/ SA transitions, IMM processes</li> <li>Policies, processes and transition arrangements for trading/ banking book assignment. Booking model for switching penalties</li> <li>Develop target operating model for risk measurement</li> </ul>	<ul><li>Risk</li><li>Trading</li></ul>	<ul> <li>Target model for IMA/ IMM</li> <li>Model for trading/ banking book boundary</li> <li>Model for risk measurement including identification of stress periods and IM/ SA switching</li> </ul>
Methodo	logy	<ul> <li>Adapt methodology and models (ES, liquidity horizons, stressed calibration, IDR, NMRF, residual risk add-ons etc.)</li> <li>Integration with standardized approach</li> <li>Validate and calibrate P&amp;L attribution framework. Identify stress periods.</li> <li>Regulatory CVA (risk-neutral)</li> <li>Quantitative Impact Assessment, benchmarking</li> </ul>	<ul><li>Risk</li><li>Finance</li></ul>	<ul><li>Target methodologies</li><li>Target models</li></ul>
Reporting Regulato Relation	ory	<ul> <li>Define and agree future desk level reporting</li> <li>Agree internal and external reporting content and granularity</li> <li>Obtain IMA/ IMM approval under new regime</li> </ul>	<ul> <li>Regulatory Relations/ Compliance</li> <li>Trading</li> <li>Risk</li> </ul>	<ul><li>Target Reporting methodology</li><li>IMA/IMM approvals</li></ul>
Data and Infrastruc		<ul> <li>Review and optimize sourcing of risk factors, identify gaps and potential improvements</li> <li>Analyse data quality and minimize impact of uncertainty onto risk measures</li> <li>Perform impact assessment on risk IT landscape</li> <li>Develop target architecture for risk and finance</li> </ul>	<ul><li>Risk</li><li>IT</li><li>Finance</li></ul>	<ul> <li>Sourcing model for risk factors</li> <li>Target system architecture</li> </ul>

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#### Timeline

2011	<ul> <li>Messages from the academic literature – raises fundamental questions on risk management, including the use of VaR vs coherent risk measures</li> </ul>
2012	
	<ul> <li>May 2012 - First consultation paper on FRTB (BCBS219/ CP1)</li> </ul>
2013	<ul> <li>Jan 2013 - Investigation into market risk weighted assets – regulatory consistency assessment programme (RCAP)</li> </ul>
	<ul> <li>Oct 2013 - Second consultation paper on FRTB (BCBS265/ CP2)</li> </ul>
2014	
	<ul> <li>Sept 2014 – Publication of hypothetical portfolio exercise</li> </ul>
2015	<ul> <li>Dec 2014 – "Outstanding issues" on FRTB (D305/ CP3)</li> </ul>
2013	<ul> <li>June 2015 – Interest rate risk in the banking book</li> <li>July 2015 – Review of the Credit Risk Adjustment Risk Framework (D325)</li> <li>Oct/ Nov 2015 – QIS 3 results published. QIS 4 preliminary results</li> </ul>
2016	<ul> <li>End of 2015 – Finalization of rules planned</li> </ul>
	■ From 2016 – Calibration phase for 2 – 3 years
2017	
2018	<ul> <li>2018 – Tentative go-live date</li> </ul>

- The industry is concerned that the aggregate effect of the FRTB regulation has not been understood completely.
- In a letter from Feb 2015, the three industry bodies ISDA, GFMA and IIF raised a request to include results from the June 2015 QIS with the final policy.
- Although the BIS and industry bodies have run four impact studies, the level of change in the framework during 2015 with high impact (such as the residual risk add-on in QIS 3 with 47% of SA capital) raise concerns how well-understood and how predictable its impact is on specific banks as well as on the market place as a whole.
- By end of 2015, only a few banks have advanced implementation activities, but many are ramping up projects. The changes in risk governance, in risk measurement and in the system landscape require banks to act swiftly and decisively to be ready for a 2018 deadline.