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Fundamental Review of the Trading Book

Perspectives on requirements and impact

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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.
- Final rules have been published in January 2016, and the regulation is going to come into effect in Jan 2019.
- After four quantitative impact studies (QIS) reviewed the changes in capital demand and found considerable increment in participants by up to 800%, the BIS expects the final regulation to result in an average capital increase of 40%.
- Banks need to assess the impact on their portfolio, review their options under the new regime, but also get their risk operating model and infrastructure ready for new requirements, which will require considerable change.
- This paper highlights critical requirements and levers for banks to address the requirements of FRTB.

Increased capital demand

- The QIS 3 and 4 studies triggered significant concern across the market place, indicating an increase in market risk capital requirements of up to 800% (QIS 3[1)]), and the capital under revised standardized approach (SA) 4.2 times higher (QIS 4[2)])
- The final regulation has softened the impact to some extent; specifically the capital demand of the residual risk add-on (47% of SA capital in QIS 4[2)]) has been reduced. The BIS expects an increase of capital by 40% on average under final rules[3)].
- However, given vast variations across banks in earlier studies, banks should carefully consider the impact on their own portfolios.

Dramatic cliff effects for Standardized Approach

- BIS estimates the median difference between IMA and SA a factor of 1.2 – 1.5 dependent on the asset class – however, with a standard deviation of up to 3.9. This indicates that banks should carefully assess their own portfolios.
- 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[2)].
- 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

1) Fundamental Review of the Trading Book – Interim Impact Analysis November 2015 (“QIS3”), http://www.bis.org/bcbs/publ/d346.pdf
2) Key findings of the Joint Associations' FRTB QIS Analysis (“QIS4”), https://www.iif.com/publication/regulatory-report/key-findings-joint-associations-frtb-qis-analysis
3) Minimum capital requirements for market risk, BIS, Jan 2016, http://www.bis.org/bcbs/publ/d352.htm

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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	▪ More robust IMB approval process, model approval at desk level ▪ Enhanced backtesting, P&L attribution requirements ▪ Risk factors modellable only under strict requirements for data availability	▪ More complex IMB approval ▪ Data quality and availability ▪ Capital for non-modellable risk
Risk Metrics	▪ Stressed calibration, chosen stressed risk factors to explain ≥ 75% of variation ▪ Expected Shortfall (97.5%), liquidity horizons by risk factor/ product type ▪ Non-Modellable Risk Factors	▪ Stress period to be defined ▪ Capital impact ▪ Calculation and interpretation of ES
Risk Measurement	▪ Limited diversification benefit between asset classes, constrained hedging benefits ▪ Replacement of IRC with Default Risk Charge (DRC) ▪ Revised standardized approach as a “credible fallback”/alternative – more risk-sensitive ▪ Securitisations have to be capitalized using the standardized approach ▪ SA to be calculated for all positions – may become benchmark or floor ▪ Stressed correlations for standardized models ▪ Residual Risk Add-ons in standardized approach ▪ Reporting at desk level	▪ Standardized calculations in addition to IMB ▪ Stressed correlations, “risk buckets” ▪ Gold not as FX anymore ▪ Production and monitoring of desk level data ▪ Punitive capital charges for securitizations
Risk Reporting	▪ Proposed desk level reporting and disclosure	▪ Leakage of confidential information
CVA	▪ Migration to a market implied/ risk-neutral framework (CVA paper) ▪ CVA still as a separate component rather than by modelling CP spread	▪ Further development from Basel III
Trading/ Banking Book Boundary	▪ Reduce permeability by stricter rules ▪ Reduce opportunity for arbitrage, better supervisory tools ▪ Presumption of trading book for certain instruments, including options ▪ Capital penalty for switching ▪ Internal risk transfers (IRT) as a limited transfer instrument	▪ Potential inconsistencies between regulators ▪ Difficulty recognizing hedge instruments for banking book (apart from IRTs) ▪ Instrument taxonomy for regulatory treatment ▪ Booking of switching penalties
Governance	▪ Trading strategy to be defined at desk level	▪ Leakage of confidential information

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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 non-modellable 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 split correlations used in the standardized models impact the capital benefit of hedging and in some cases even disincentivise delta neutrality. • Many expected that securitizations considered "simple"[1] will be treated in a less heavy-handed way. The final regulation still implies the capital intensive standardized model for all securitization. It is open how this relates to initiatives reviving the securitization market, e.g. in the European context. • The quantitative impact studies (QIS) found dramatic variation of capital input between market participants.	• Assess the impact of the final rules on the portfolio of the portfolio, especially if you have not or not fully participated in the QISs. • Assess P&L attribution and back-testing, identify and remediate non-eligibility of desks • Identify potentially non-modellable risk factors and reasons of non-modellability • 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.
Process, data quality and availability	• Processes for trading/ banking book designation have to be strengthened. Regulatory re-assignment 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	• 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 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	• Models to be implemented/ sourced • Model performance management processes to be defined and managed • Considerable change in front office, risk and risk aggregation systems

[1] Criteria for identifying simple, transparent and comparable securitisations, Basel Committee for Banking Supervision, July 2015

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

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- 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.

Volcker Rule	• 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.	• 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
BCBS239	• 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.	• Liaise with BCBS239 project teams and CDO 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
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.	• Leverage experience and knowledge from prior change initiatives • Where residual activities from Basel change programmes are still unfinished, consider creating synergies
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.	• Consider consolidated mechanisms for specification, data provisioning and evaluation of stressed scenarios to create consistency
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.	• Liaise with strategic review programmes to raise awareness of changing capital requirements

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

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Banks have three years to implement the final rules

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2011

- Messages from the academic literature – raises fundamental questions on risk management, including the use of VaR vs coherent risk measures

2012

- May 2012 - First consultation paper on FRTB (BCBS219/ CP1)

2013

- Jan 2013 - Investigation into market risk weighted assets – regulatory consistency assessment programme (RCAP)
- Oct 2013 - Second consultation paper on FRTB (BCBS265/ CP2)

2014

- Sept 2014 – Publication of hypothetical portfolio exercise

2015

- Dec 2014 – "Outstanding issues" on FRTB (D305/ CP3)
- June 2015 – Interest rate risk in the banking book
- July 2015 – Review of the Credit Risk Adjustment Risk Framework (D325)
- Oct/ Nov 2015 – QIS 3 results published. QIS 4 preliminary results

2016

- End of 2015 – Finalization of rules planned
- From 2016 – Calibration phase for 2 – 3 years

2017

2018

2019

- **1st Jan 2019 Go-live date**

- 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 2019 deadline.

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