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# Fundamental review of the trading book (FRTB)

## The revised market risk capital framework and its implications

February 2016

## Key highlights

### Fundamental review of the trading book design vs. Basel 2.5

The FRTB overhauls the market risk capital requirements to meet the objectives of the Basel Committee (the Committee) in its effort to address shortcomings of the current Basel 2.5 market risk capital framework and reduce the variability of market risk weighted assets (RWA) across jurisdictions. FRTB design features intended to achieve these objectives include:

- ▶ More granular and prescriptive standards designed to limit implementation interpretations and promote consistency across jurisdictions
- ▶ A revised trading book/banking book boundary with more explicit requirements for inclusions and exclusions of positions and limitations on reclassifications to reduce the scope for arbitrage
- ▶ An overhaul of the Internal Models Approach (IMA) to focus on tail risk, varying liquidity horizons, constrained diversification and risk factor observability standards
- ▶ Stringent trading desk-level IMA approval processes, including new profit and loss (P&L) attribution tests to assess the impact of the differences in risk factors used in risk management and bank pricing models
- ▶ An overhaul of the Standardized Approach (SA) to make it more risk-sensitive and explicitly capture default and other residual risks, and serve as a floor for IMA charges

These changes are estimated by the Committee to result in an estimated 40% weighted average increase in total market risk capital requirements from current levels, with individual bank results varying depending on the composition of a bank's trading portfolios.

### Changes from the prior FRTB draft

The final FRTB contains certain recalibrations and modifications from the prior draft proposal. Key areas of change in the final standards include:

- ▶ The extension of the implementation timeline as compared to prior Committee communications; national supervisory rule-making is now required by January 2019, and banks are required to report under the new standards by 31 December 2019, giving banks more time to implement the substantial changes to models, data, technology and processes needed for FRTB
- ▶ Notable SA recalibrations such as the introduction of a cap on the capital charge of individual cash securitizations at their fair value, lower risk weights for certain exposures (such as non-Correlation Trading Portfolio securitizations and non-exotic instruments subject to the Residual Risk Add-on), and higher risk weights for general interest rate and foreign exchange risk
- ▶ Notable IMA recalibrations such as reductions in certain expected shortfall (ES) liquidity horizons and the lack

of application of the capital charge multiplier to non-modellable risk factors, although the base multiplier applied to the ES capital charge has been increased to 1.5 from 1

- ▶ Modifications to risk-theoretical P&L calculations that no longer require the use of pricing models embedded in the bank's ES models to measure P&L but instead the P&L that would be produced by the bank's pricing models if they only included the risk factors used in risk management models
- ▶ Modifications to hypothetical P&L calculations that no longer require the use of "books and records" P&L but the P&L produced by the bank's pricing models

### Areas not final or subject to change

The Committee acknowledges that certain areas require further work or may be subject to further change, including:

- ▶ The calibration of the SA as capital charge floor for the IMA
- ▶ The finalization of P&L attribution test thresholds
- ▶ The standards for Pillar 3 disclosure requirements, which will be proposed in a separate public consultation
- ▶ The finalization of the revised credit valuation adjustment framework using the FRTB framework

# Executive summary

## Introduction

The Basel Committee's overhaul of the market risk regulatory capital framework is here. In a journey that started in 2011<sup>1</sup> to address the shortcomings of the current market risk capital framework<sup>2</sup> (herein referred to as Basel 2.5) and design a minimum capital standard for market risk to be more uniformly applied across jurisdictions,<sup>3</sup> the Basel Committee on Banking Supervision (the Committee or BCBS) publicly released the new market risk framework, "Fundamental review of the trading book" (FRTB) on 14 January 2016.<sup>4</sup>

Highlights of the final FRTB relative to the most recent draft proposal<sup>5</sup> include a relaxed implementation timeline relative to prior Committee communications, modified profit and loss (P&L) calculation standards for the implementation of the P&L attribution tests used to assess internal risk model alignment with the banks' pricing models, and certain recalibrations that the Committee has estimated will result in lower, on average, industry-wide market risk weighted asset (RWA) increases than were estimated in Quantitative Impact Study 4 (QIS 4).

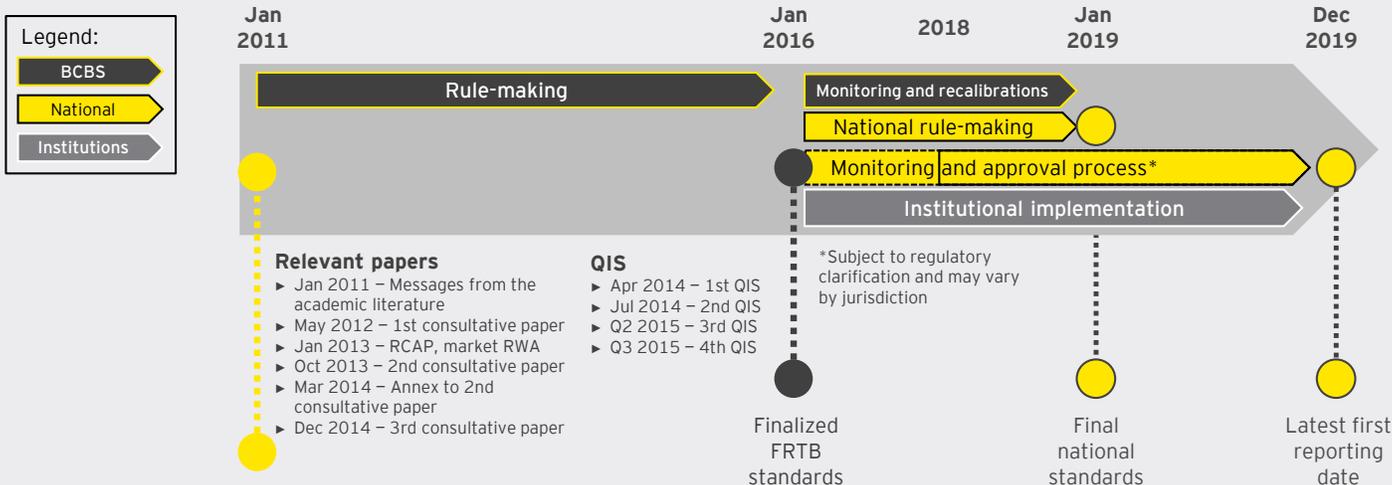
However, the FRTB also includes certain recalibrations that may leave some banks with higher market RWA relative to the QIS 4

results, dependent upon the composition of their trading portfolios. Further, the Committee estimated the FRTB will still result in a 40% weighted average increase in total market risk capital requirements as compared to the current Basel 2.5 framework.<sup>6</sup>

The changes that must be made to banks' infrastructures to implement the FRTB standards are transformational. The required data and technology changes needed to support analyzing the coverage of risk factors in risk and pricing model architecture and enhance market data observability processes under the internal models approach are significant, and the standardized approach requirements to use granular risk factor sensitivities will also require an overhaul of current market risk capital calculations and processes. While detailed implementation requirements will be further defined by rule-making in each jurisdiction, given the significance of the changes, banks should quickly launch or accelerate their strategic FRTB programs. This will allow banks to thoroughly consider the business strategy and implementation implications and make FRTB program choices early enough to meet the significant demands of FRTB implementation.

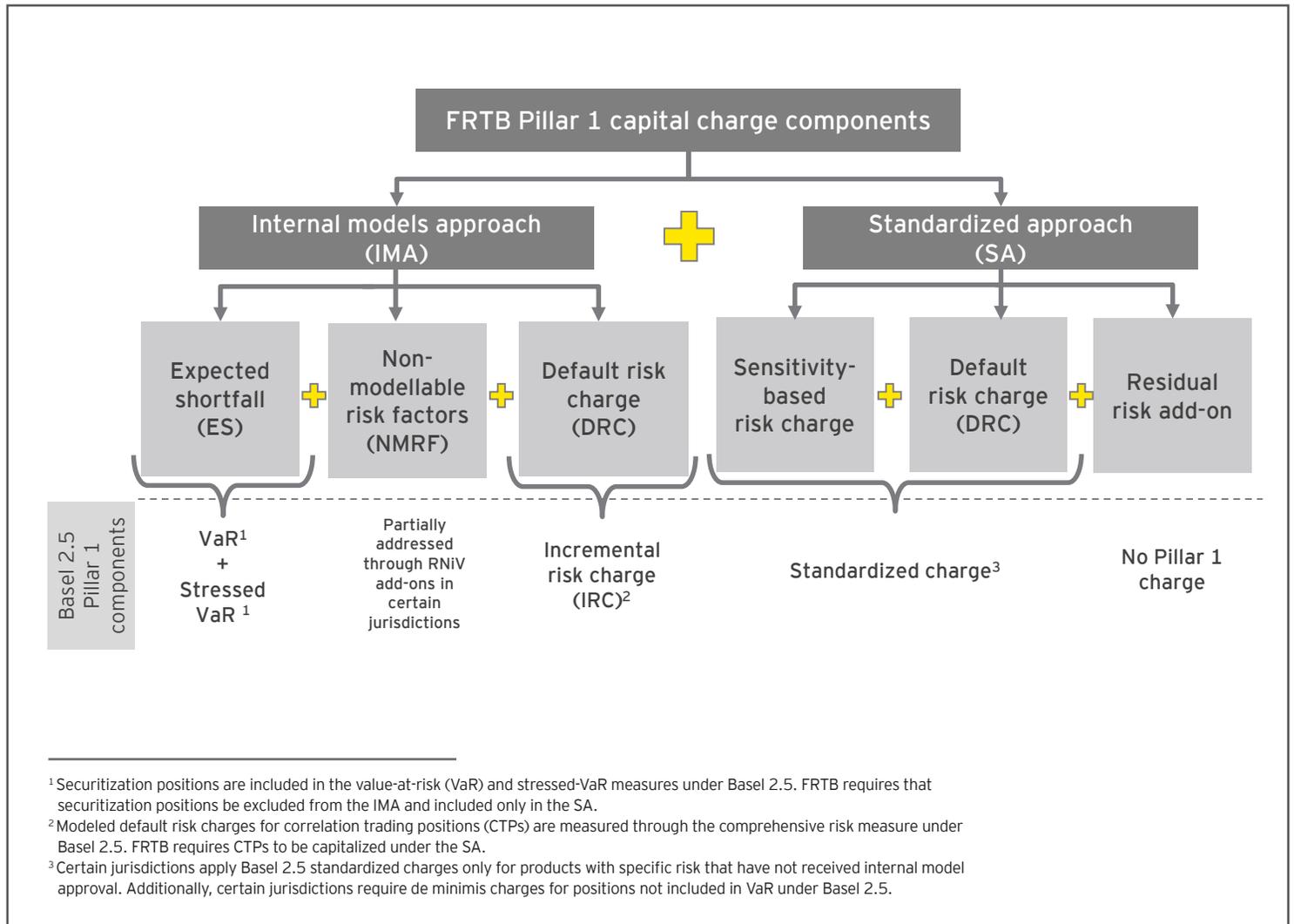
## Implementation timeline

National supervisors are expected to issue final regulations by January 2019, with banks required to report under the new standards by year-end 2019. Prior Committee communications targeted implementation by 2018. The extension allows additional time to implement the significant changes to data, technology and business strategy required to address FRTB.



## FRTB market risk capital components

The illustration below presents a simplified depiction of the market risk capital charge components under FRTB and a comparison to the components under Basel 2.5.



It is important to note that under FRTB, the SA will act as a “floor” and thus act as a minimum to the Pillar 1 capital charges under IMA, whereas under Basel 2.5 an SA floor existed only for correlation trading portfolios subject to the CRM. Additionally, for some banks that may redesignate the regulatory capital treatment of instruments between trading and banking books, a related Pillar 1 surcharge will exist that will not allow banks to receive a reduction in their total capital charge as a result of such redesignations.

## Final FRTB design

The FRTB retains the core elements of the draft proposals to overhaul the current market risk capital framework to meet the Committee's objectives to enhance risk measurement and reduce market RWA variability across firms and jurisdictions. Key revisions relative to the Basel 2.5 framework designed to achieve these objectives include:

- ▶ A more prescriptive trading book definition with tighter restrictions on trading book/banking book reclassifications that will reduce regulatory arbitrage
- ▶ A revised internal models approach that:
  - ▶ Replaces the current 99%, 10-day value-at-risk (VaR)/stressed-VaR approach with a 97.5% stressed expected shortfall (ES) to improve the measurement of tail-risk (through the averaging of tail losses), account for market liquidity (through varying liquidity horizons), and recognize stressed correlations (through restraints on diversification benefits)
  - ▶ Requires, for all trading book positions, model approval at a trading-desk level that is dependent upon passing back-testing and new P&L attribution requirements designed to monitor the impacts of the use of different risk factors in risk models versus a bank's pricing models
- ▶ Includes formal market data observability standards requiring risk-factor-level analysis to demonstrate that risk factors meet "real" price criteria to support the eligibility of risk factors within the ES measure or be subject to an alternative non-modellable risk factor (NMRF) add-on charge
- ▶ Replaces the current incremental risk charge (IRC) with a default risk charge (DRC) as the modelled measure for default risk that now has mandatory inclusion of equities
- ▶ A revised standardized approach that:
  - ▶ Is more risk-sensitive through the use of granular first- and higher-order risk factor sensitivities in the delta, vega, and curvature charges based on internal pricing models
  - ▶ Specifically capitalizes default and other risks through explicit DRC and residual-risk add-on charges
  - ▶ Upon further calibration, will act as a minimum (floor) to the internal models approach-based Pillar 1 capital charges

## Changes from QIS 4

The FRTB contains several recalibrations that will lead to changes in the overall capital impact of the final FRTB relative to earlier drafts of the framework. The Committee has described that the final FRTB, although recalibrated to lower market RWA relative to QIS 4 results, is still estimated to result in a 40% weighted average increase in total market risk capital requirements compared to the current Basel 2.5 framework. The FRTB also has several changes that will modify implementation efforts.

Notable changes, recalibrations and other modifications from QIS 4 are summarized in the table below.

### FRTB final rule vs. QIS 4

#### Internal Models Approach

- ▶ The base multiplication factor applied to the internal model capital charge is increased to 1.5 from 1.
- ▶ ES liquidity horizons are now capped at 120 days, with notable reductions for credit and equity risks.
- ▶ NMRF charges are no longer subject to the internal model capital charge multiplier.
- ▶ NMRFs from idiosyncratic credit spread risk may apply the same stress scenario and a zero correlation assumption may be made when aggregating gains and losses subject to supervisory approval.
- ▶ IMA DRC liquidity horizon for equities is reduced to 60 days from one year.
- ▶ ES quantitative standards no longer reference requirements for use of full-revaluation.
- ▶ Look-back period for stressed period calibration has been shortened to 2007 from 2005.
- ▶ Vendors are recognized as acceptable source for "real" price data, subject to certain conditions.
- ▶ Hypothetical P&L calculations now reference use of bank pricing models and not "books and records."
- ▶ Risk-theoretical P&L calculation is now the P&L produced by banks' pricing models using risk factors captured in ES but not specifically the ES risk model.
- ▶ Internal models approval standards now reference that supervisors may continue to grant model approval under rare circumstances where a bank has breached backtesting or P&L attribution thresholds due to extraordinary circumstances such as a major regime shift or a period of significant cross-border financial market stress

#### Standardized Approach

- ▶ General interest rate risk and foreign exchange risk weights are increased.
- ▶ Base vega risk weights for interest rate risk and all credit spread risk classes are increased.
- ▶ A cap at fair value to the capital charge of individual cash securitizations is introduced.
- ▶ Risk weights are lowered for certain buckets within individual risk classes, with notably large decreases for non-correlation trading portfolio securitizations.
- ▶ New buckets with lower risk weights are included for certain products such as covered bonds.
- ▶ Residual risk add-on for instruments with exotic underlyings (subject to a 1% risk weight) such as weather derivatives and volatility swaps) are differentiated from other residual risks (subject to a 0.1% risk weight) in products such as path dependent options, basket options, and instruments with prepayment risk.
- ▶ Liquidity Horizons are reduced under the vega risk charge for the FX, small cap equity, and all credit risk classes, in alignment with IMA.

## Other requirements and features

The FRTB has additional risk management and reporting requirements and other features that may require careful implementation planning beyond the specific efforts to implement the IMA and SA. These include:

- ▶ Intraday limit requirements to prepare, evaluate and have available for supervisors information on intraday limits utilization and breaches for banks with active intraday trading
- ▶ Market liquidity requirements for banks to prepare information on inventory aging and market liquidity
- ▶ Daily monitoring expectations for banks to manage their market risk in such a way that the capital requirements are met on a continuous basis, including the close of each business day
- ▶ Stress-testing requirements to have bankwide and trading desk-level stress-testing programs to identify and measure the risk of scenarios that stress factors that could generate extraordinary trading book losses
- ▶ Potential entity-level capital calculations for supervisors to monitor the market risk of individual entities on a non-consolidated basis and the recognition that there may be circumstances in which supervisory authorities require the individual risk positions from certain entities to be taken into the measurement system without any offsetting or netting against risk positions in the remainder of the group

## Open requirements

Despite the FRTB being “final,” the Committee acknowledges that aspects of the FRTB will be subject to new or potentially different requirements that will evolve prior to the effective date. Aspects of the FRTB identified by the Committee that may change include:

- ▶ The calibration of the SA floor to the IMA charges
- ▶ P&L attribution test thresholds, which also may change subject to the monitoring
- ▶ Pillar 3 disclosure requirements, which were published in draft form in prior publications but were not included in the final FRTB and will be proposed for public consultation and finalized in a separate BCBS publication

## Credit valuation adjustment (CVA) commentary

The Committee also restated that the outstanding proposal on the CVA standards<sup>7</sup> will be incorporated into the FRTB framework, on a stand-alone basis, when the CVA standards are complete. The Committee did not provide further guidance as to the proposed implementation timing or upcoming revisions to the CVA standards.

## Infrastructure considerations

For many banks, FRTB implementation will require significant changes to current market risk infrastructure. Specific initiatives may include:

- ▶ Comparing risk factors captured in risk management models to those captured within a bank’s pricing models, to highlight potential drivers of eligibility test failure and assist in prioritizing risk management model enhancements to include additional risk factors where applicable
- ▶ Comparing the banks’ current methodologies to measure risk factor sensitivities to the prescribed methodologies under the sensitivity-based approach and undertake remediation efforts to support the SA calculation
- ▶ Identifying sources of gaps in transaction data that meet “real” price criteria and determining the infrastructure and processes required to remediate such gaps
- ▶ Determining additional historical risk factor time series data coverage back to 2007 needed to support the calibration of the ES model to a stressed period
- ▶ Analyzing sources of reference data needed to produce ES and SA measures
- ▶ Assessing the hardware and calculation efficiency efforts needed to meet the increased demands for computation and data storage

FRTB programs should also coordinate with other in-flight programs such as banks’ BCBS 239<sup>8</sup> programs, Uncleared Margin Rule Standard Initial Margin Methodology<sup>9</sup> programs for non-centrally cleared derivatives, stress testing enhancement programs, and P&L explain initiatives, as applicable, all of which will likely share common components, data attributes and/or calculations with the FRTB framework.

## Footnotes

<sup>1</sup> Basel Committee on Banking Supervision, January 2011, [http://www.bis.org/publ/bcbs\\_wp19.pdf](http://www.bis.org/publ/bcbs_wp19.pdf)

<sup>2</sup> Basel Committee on Banking Supervision, December 2010, <https://www.bis.org/publ/bcbs193.pdf>

<sup>3</sup> Basel Committee on Banking Supervision, January 2013, <http://www.bis.org/publ/bcbs240.pdf>

<sup>4</sup> Basel Committee on Banking Supervision, January 2016, <https://www.bis.org/bcbs/publ/d352.pdf>

<sup>5</sup> Basel Committee on Banking Supervision, July 2015, [http://www.bis.org/bcbs/qis/instr\\_impact\\_study\\_jul15.pdf](http://www.bis.org/bcbs/qis/instr_impact_study_jul15.pdf) (see Annex I)

<sup>6</sup> Basel Committee on Banking Supervision, January 2016, [https://www.bis.org/bcbs/publ/d352\\_note.pdf](https://www.bis.org/bcbs/publ/d352_note.pdf)

<sup>7</sup> Basel Committee on Banking Supervision, January 2016, <http://www.bis.org/bcbs/publ/d325.pdf>

<sup>8</sup> Basel Committee on Banking Supervision, January 2013, <http://www.bis.org/publ/bcbs239.pdf>

<sup>9</sup> ISDA Working Group on Margin Requirements Implementation Initiative, February 2015, <http://www2.isda.org/attachment/Nzi2Mw==/ISDA%20WGMR%20webcast%20FINAL%20slides.pdf>

# Actions to be considered

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The need both to analyze the impacts of the FRTB recalibrations and changes on a bank's business and to plan for the significant implementation efforts warrants immediate action by banks, including:

- ▶ Developing rule interpretations and assumptions that will impact the bank's view of implementation requirements prior to launching projects
- ▶ Updating RWA impact analyses to reflect the updated liquidity horizons, risk weights and other changes from QIS 4 to enhance the estimate of FRTB RWA impacts at various levels (e.g., top of the house, specific lines of business, trading desks)
- ▶ Increasing FRTB communication with senior management and the front office, to increase awareness and engagement regarding the implementation timing of the FRTB, the national supervisory rule-making status, the anticipated RWA impacts, business strategy and enterprise capital planning considerations and the anticipated size and scale of the bank's FRTB program and related resource needs
- ▶ Forming business strategy and capital optimization working groups or projects, to further analyze the drivers of FRTB pro forma RWA to allow for early identification of priority work streams, and assessment of future potential market impacts of the FRTB (e.g., market liquidity, bid-ask spreads, pricing, profitability)
- ▶ Executing gap analysis and project planning efforts to assess the bank's current state infrastructure and relevant in-flight programs against the FRTB key requirements to identify critical gaps
- ▶ Identifying areas with the longest implementation lead times such as modelling, data and overall risk infrastructure enhancements that will be needed not only for minimum compliance but also for RWA optimization strategies through pursuing model approval
- ▶ Launching strategic FRTB implementation programs, migrating from tactical working groups and QIS execution teams, formalizing the governance, oversight and accountability of stakeholders, and developing resource and budget needs across the bank



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