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FRTB 2.0: The New Market Risk Framework



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1. Overview and timeline

On 14 January 2019, the Basel Committee (BCBS) published the new “Minimum capital requirements for market risk”. These finalise the revisions of the Fundamental Review of the Trading Book (FRTB) [1] and constitute the last building block of the Basel III reforms [2].

The document further introduces a new modular document structure, which will be applied to all future BCBS standards. An explanatory note detailing changes and impact [3] and a version of the standard, incorporating previously published FAQs [4], accompany the new rules.

The original FRTB framework was set out by the 2016 standard [5], with the consultative document (CD) of March 2018 [6] initiating a revision due to issues raised from the industry.

This document summarises the significant changes in the ruleset compared to the 2016 standards and the proposals of the 2018 consultative document.

2. Summary of the most significant changes

The boundary between the trading book and the banking book

The introduction of explicit lists of which instruments should be assigned to the trading or banking book in the 2016 standard were a significant change. However these lists were contradictory or resulted in contradictions when applied with additional criteria in the standard. Those contradictions were resolved in the CD and in the final version with clarifications of the hierarchy of the applicable requirements. A legal impediment on tradability and the “banking book list” (RBC25.8) always have priority.

The requirement that positions managed on a trading desk have to be assigned to the trading book has been removed from the framework as proposed in the CD.

The assignment of underwriting positions to the trading book has been limited to securities underwritings in the CD. It is further specified in the final version to refer only to securities that are expected to be actually purchased by the bank.

It was clarified that the obligatory assignment of real estate holdings to the banking book applies to direct holdings of

real estate as well as derivatives on direct holdings.

The final rules for investment in funds are different from the CD. To be permitted in the trading book one of the two following conditions need to be met: sufficient and frequent look through verified by an independent third party, or daily prices and access to information contained in the fund’s mandate or its national regulations. The fund’s link to a benchmark proposed in the CD was removed. Equity investments in funds that cannot be looked through but are assigned to the trading book must be treated under the standardised approach.

Hedge funds have been separated as an item for the banking book without conditions.

The clarification of the term “trading-related repo-style transactions” for the trading book from the CD is kept: Repo-style transactions that are entered for liquidity management and valued at accrual for accounting purposes are excluded from this new definition.

The footnote on “embedded derivatives” was amended. Those positions are presumed to be trading book positions when the embedded derivative is bifurcated and separately recognised on the bank’s balance sheet for accounting purposes.

Reassignment

The 2016 standard only permitted the transfer of instruments between the regulatory books under exceptional circumstances and with approval from the supervisor. The final paper recognises that changes in the characteristics of a position require reassignments as outlined in the CD. Reallocation of securities positions between TB and BB are in scope of the new requirements for reassignments.

Internal risk transfers

In the final standard, some editorial changes to the text have been made to align the rules for credit and equity risk transfers. In addition to the CD, two aspects are clarified: the external hedges corresponding to EQ/CR IRT can be made up of multiple transactions with multiple counterparties as long as the aggregate external hedge exactly matches the IRT; and the treatment of eligible hedges for the CVA capital requirement and IRT between trading book and CVA portfolio.

Structural FX positions

In line with the CD, the maximum FX position which can be excluded from the capital requirements calculations is now based on the FX sensitivity. This limit was previously defined in relation to the investments in consolidated subsidiaries or non-consolidated affiliates. Furthermore, structural FX positions in foreign branches of a bank can

be included in the exemption. The approval process is now relaxed and refers to the bank's risk management policy for structural FX positions as opposed to the change in size of the position - as specified in [5] and [6].

Trading desks

The rules for the designation of (head) traders to desks proposed in the CD were further clarified and partly relaxed in the final standard. Supervisory approval is no longer necessary to assign a trader across several trading desks, a justification is sufficient. Up to two head traders are now possible per desk.

Standardised approach

The new standardised approach has three components: sensitivities-based approach, default risk charge, and residual risk add-on. The changes mainly apply to the sensitivities-based approach. The sensitivities are to be determined using pricing models used to report market risks or profit and losses. For the computation of vega sensitivities, some clarification concerning sticky strike or sticky delta is provided.

CORRELATIONS As proposed in the CD, the BCBS introduces a significant reduction of the scaling in the "low correlations" scenario for highly correlated risk factors. The previous scaling factor of 75% underestimated the empirically observed correlations significantly and was thus deemed as too conservative.

FX RISK Subject to supervisory approval, banks may now calculate FX risk based on their base currency instead of the reporting currency. The updated approach acknowledges the triangulation of FX pairs, as proposed in the CD. An FX pair that consists of a combination of two liquid FX pairs is now considered a liquid FX pair itself. This implies lower risk weights for these currency pairs compared to the 2016 standard.

CURVATURE (CVR) As proposed in the CD, upward and downward shocks are applied consistently per bucket for certain risk classes, contrary to the former per-risk-factor approach. This was introduced to avoid the capital requirements for similar or highly correlated instruments being based on different scenarios. In addition, the formula for the calculation of the aggregate capital requirements is adjusted to avoid cliff effects.

The new approach also addresses double-counting in the curvature risk for FX options, which do not include the reporting (or base) currency of a bank. The BCBS introduces the reduction of the CVR by means of scaling factors.

As a new amendment, instruments without optionality may now be included in the curvature risk calculation when curvature risk is managed holistically across

options and other instruments. To be applicable, curvature risk must be calculated for all instruments subject to the sensitivities-based method consistently through time.

RISK WEIGHTS Analysis of the monitoring exercises indicated an unintended increase in the capital requirements. To counter this, the BCBS has reduced the risk weights for: general interest rate risk (by 30%), FX risk (by 50%), and credit spread risk of high-yield sovereign bonds and covered bonds.

The proposed reduction of the risk weights for equity risk from the consultative document is not included in the final standard.

MULTI-UNDERLYING OPTIONS AND INDEX INSTRUMENTS The final standard now includes clarity on how to treat these products as outlined in the CD; the sign of the delta risk sensitivities towards underlyings is not the determining factor anymore. A look-through approach is no longer compulsory for the curvature calculation either.

For delta sensitivities, index buckets for credit and equity indices are introduced to simplify calculations.

Simplified standardised approach

The simplified alternative to the standardised approach is intended to reduce the burden on banks with a small and simple trading book.

As already indicated by the CD, the current standardised approach will be maintained. The contributions of the four different risk classes will have to be scaled up by the factors $SF_{IRR} = 1.30$, $SF_{EQ} = 3.50$, $SF_{COMM} = 1.90$, $SF_{FX} = 1.20$

Note that these factors result in a considerable increase of capital requirements compared to the current framework for banks, which rely on this approach. For instance, even the smallest factor (FX risk) implies an increase of 20% compared to today.

Internal models approach

The capital requirement for trading desks eligible for the new internal models approach (IMA) consists of three components: the expected shortfall adjusted for the liquidity horizons for modellable risk factors, the stressed expected shortfall (SES) for non-modellable risk factors (NMRF), and the default risk charge (DRC). A P&L Attribution (PLA) test per trading desk has been introduced to determine the model quality and for approval of the FRTB model on trading desk level. The revised standard includes: new PLA test metrics and failure consequences, changes of the risk factor eligibility test (RFET), and a simplified calculation with a less overly conservative aggregation of SES capital charges.

The general criteria for a bank's use of the IMA follow a three-prong approach for trading desk eligibility: 1) the bank's organisational infrastructure and internal risk management must satisfy qualitative standards; 2) banks must nominate trading desks to be intended in-scope and out-of-scope for the use of the IMA; 3) the bank requires supervisory approval to use the IMA on individual desks. Trading desks nominated out-of-scope for the IMA approval will be ineligible to use IMA for at least one year from the date of latest model approval.

P&L ATTRIBUTION The final standard clarifies some aspects regarding the P&L measures: hypothetical P&L (HPL), risk-theoretical P&L (RTPL), and actual P&L.

The treatment of valuation adjustments have more clarity in the final standard as in the CD, i.e. for HPL consider only daily adjustments on trade and desk level. Adjustments already covered by other rules, e.g. CVA or DVA are excluded. In general, a different treatment can be agreed with the competent supervisor.

Time effects are to be considered consistently for HPL and RTPL.

Actual P&L and HPL should originate in the bank's P&L systems. The RTPL should be calculated using the risk factors and valuation techniques of the bank's risk management model.

The document addresses the potential of different input data for HPL and RTPL, e.g. different collection times of market data or different data providers. Banks are allowed to align RTPL input data if these alignments are properly documented, justified to the supervisor, and specific requirements are fulfilled.

The final standard selects the following two new metrics for the PLA test out of the proposed metrics in the CD:

- Spearman correlation – for the estimation of the correlation between HPL and RTPL
- Kolmogorov-Smirnov Test – for the test of the similarity of RTPL and HPL distributions

The frequency for the PLA test is set to quarterly with the data of the preceding 12 months as the input. Newly calibrated thresholds for PLA tests are introduced and are slightly lower than in the CD.

The Committee revised from the previous binary pass or fail outcome to a “traffic light” approach for trading desks to avoid volatility in the capital requirements that would be solely based on PLA test results. Desks passing the PLA test are in the “green zone” (capital requirements based on the IMA), desks failing the test are in the “red zone” (capital requirements according to standardised ap-

proach). Desks in the “red zone” can only return to being capitalised based on IMA, if all PLA tests are passed and the desk belongs to the “green zone” again. A new “amber zone”, has been defined in which a capital surcharge is calculated by a simple formula. This add-on is based on the difference between: requirements according to IMA and the standardised approach on an aggregated level over all desks. The formula is calibrated such that the add-on equals 50% of the capital reduction by the IMA compared to the standardised approach, if all desks were in the amber zone. The amber zone has been widened compared to the CD. In addition to the definition in the CD, the impact of the capital surcharge is limited by a formula preventing a cliff effect due to capital surcharge overcapitalisation of all desks under the SA.

The PLA test will be required beginning 1 January 2022, but the outcome of the PLA traffic light approach for Pillar 1 requirements will apply from 1 January 2023. This transitional agreement has been newly introduced.

MODEL ELIGIBILITY OF RISK FACTORS The document revises the “risk factor eligibility test” (RFET), i.e. the definition of “real prices” being representative for a risk factor and the required price observation criteria. As proposed in the CD, committed quotes (by the bank or third parties) can be used as real price observations and the bank can resort to data-pooling schemes of a third-party vendor, given that certain conditions are satisfied. Furthermore, the BCBS now acknowledges the potential impact of the seasonality of markets onto RFET by requiring the satisfaction of one of the following criteria:

- At least 24 observations per year are identified and no 90-day period with fewer than four real price observation exists.
- At least 100 observations over the previous 12 months are identified.

Where the risk factor is a point on a curve or a surface, banks may choose between two alternative bucketing approaches for the RFET:

- A bank's own bucketing approach, adhering to given constraints.
- Regulatory bucketing approach with newly defined standard buckets for the different risk factor classes. Compared to the proposed Alternative 2 in the CD, the number of buckets is generally reduced for all risk factor types and the boundaries revised. The bucket for the option strike dimension is now defined based on the probability that an option is “in the money” at maturity. Banks shall convert these regulatory delta buckets to market standard convention using their own approved pricing models.

As in the CD, it is further stated that the data for the RFET

do not have to be the data basis for the risk model.

A risk factor that passes the RFET additionally needs to fulfil seven qualitative principles for modellability to not being treated as a NMRF. These principles are only minor revisions to the first proposal in the 2016 standard. All examples of the application of these principles are taken from the CD and included in section MAR 99 of the final standards, which contains guidance on the use of the IMA.

The document keeps the opening clause of [6] that allows supervisory discretion to temporarily suspend the RFET for specific risk factors in times of market disturbance.

NMRF CAPITALISATION The calculation of the stressed loss (SES) for each NMRF has been simplified to reduce operational burden. Instead of identifying a separate stress period for each NMRF, a common stress period can be used for all risk factors relevant to a particular risk category. The period over which the loss should be calculated has been amended to be the same as the liquidity horizon specified for the ES measure, with a floor of 20 days.

The introduction of additional, but limited, diversification benefits during aggregation of the SES charge is a response to the overly conservative and disproportional capital requirement for NMRF of the 2016 standard. Idiosyncratic equity risk is aggregated with zero correlation, analogously to idiosyncratic credit spread risk. The SES for all remaining NMRFs is aggregated with a correlation of 0.6.

Conclusions

Most changes compared to the original text from 2016 [5] follow the proposals outlined in the CD [6] with only minor deviations. They include newly calibrated risk weights and some smaller adaptations to the standardised approach and more significant changes in the internal model section - with particular respect to the P&L attribution test and the NMRF framework. The impact analysis in the explanatory note [3] suggests an increase in capital requirements, however, far lower than under the rule set of the 2016 standard. It remains to be seen whether these changes are far-reaching enough to alleviate the concerns of the industry.

4. References

- [1] BCBS: Minimum capital requirements for market risk – January 2019
 - [2] BCBS: Basel III: Finalising post-crisis reforms – December 2017
 - [3] BCBS: Explanatory note on the minimum capital requirements for market risk – January 2019
 - [4] BCBS: Minimum capital requirements for market risk (incl FAQ) – January 2019
 - [5] BCBS: Minimum capital requirements for market risk – January 2016
 - [6] BCBS: Revisions to the minimum capital requirements for market risk – March 2018
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Do you have questions on how the changed rules might impact your institution? Please contact us:

DR ANDREAS WERNER

Partner

Andreas.Werner@d-fine.com

DR ROCHUS HERRMANN

Manager

Rochus.Herrmann@d-fine.co.uk

d-fine

Your contact at d-fine

d-fine Ltd
6-7 Queen Street
London, EC4N 1SP

You can find us at
www.d-fine.co.uk

Contact us on
+44 20 7776 1000