

IBM Fundamental Review of the Trading Book Systems Readiness Assessment



Strengthen the market risk framework for trading book capital requirements

Highlights:

- Provides an introduction to FRTB by IBM experts and increases awareness within your organization
 - Provides management with an accurate assessment of the time and effort required to meet their FRTB requirements
 - Enables firms to allocate future resources and budget as needed
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The Basel Committee is proposing revisions to strengthen the market risk framework for trading book capital requirements, referred to as the Fundamental Review of the Trading Book (FRTB). The Committee aims to learn from the last financial crisis by proposing reforms under FRTB that are intended to foster a more resilient banking sector globally, focusing on developing a regulatory framework that can be implemented consistently by supervisors, and achieve comparable levels of capital across jurisdictions.

Some of the major changes proposed in FRTB are listed below:

Requirement	Proposed FRTB change
Market risk metric	Change from VaR to Expected Shortfall (ES)
Liquidity Horizon	Will now vary depending on asset class
Internal Models Approval	Will be granted at the individual desk level instead of firm-wide
Trading/Banking book boundary	More explicit criteria for determining what instruments are part of the trading book
Models Testing	Expanded to include P&L attribution and a model independent assessment tool, in addition to VaR based back-testing
Hedging and diversification effect	More conservative approach to taking into account hedging and diversification
Migration and default risk	New Incremental Default Risk charge covers defaults only and is based on 99.9% credit VaR. Credit migration risk is covered in the ES computation
Credit securitization	Must use a new standardized approach
Mandatory Standardized Approach	Mandatory to calculate even if internal models are being used



These changes are expected to have a significant impact on the trading business of banks as well as the related systems infrastructure. The final rule on FRTB is expected to be finalized towards the end of 2015 with 2017 implementation targets.

Following are a few examples of the capital impact of FRTB:

On FRTB, JP Morgan has dedicated over 100 people to work out the impacts on at a granular level¹

— ¹Trading book fears grow as rules enter home straight, [Risk.net](#), April 2015

Deloitte has reported trading book capital requirements that are up to five times higher than current levels – and seven times higher for rates trading desks²

— ²Banks find huge capital jump in FRTB impact study, [Risk.net](#), June 2015

IBM has found that the overall capital requirement under the standardized approach is approximately nine time higher than the internal models approach³

— ³Evolution of FRTB: Is there light at the end of the tunnel?, [IBM Smarter Risk Journal](#)

System readiness assessment

IBM Risk Analytics is offering to assist Algo One clients with a System Readiness Assessment that will measure the resiliency of their existing risk infrastructure to cope with the expected operational impacts of the FRTB proposals. Experts on the proposals can offer insights into how other IBM Algo One clients are currently evolving their infrastructures to most cost-effectively meet the new demands of FRTB.

The engagement will consist of three steps. These are:

- I. Pre-assessment questionnaire
- II. On-site engagement
- III. System readiness report

Pre-assessment questionnaire

IBM Risk Analytics will provide a detailed questionnaire covering functional, data and technical aspects of the current system prior to the on-site engagement. The questionnaire will be provided two weeks before the on-site engagement and will require significant coordination within the bank as it will

require many experts in the bank to properly answer the questionnaire.

On-site engagement

IBM consultants will meet with risk, technology and project experts in the bank over a period of two to three days in order to understand the current system as well as discuss major aspects of the upcoming FRTB regulations and target model. The questionnaire and the answers provide structure to the on-site engagement as well as help identify the experts in the bank required to participate in the on-site engagement to have more detailed conversations.

Following are the areas of focus during the on-site engagement:

Overview of IBM FRTB solution

IBM will provide an overview of IBM's FRTB solution. The intent of this presentation is to provide background and establish a target system to guide rest of the discussion. This is expected to take approximately 3 hours.

Functional scope analysis

Discussion topics include:

- Analysis and review of existing valuation approaches and capabilities
- Market data requirements
- Instrument coverage and volumes
- Scenario generation techniques and capabilities
- Internal Models approach vs. standard approach
- Sensitivity calculations for the standard approach
- Migration risk modeling with credit spread volatility
- Incremental default risk charge
- Stress period determination
- Back-testing requirements and automation
- P&L attribution

Additional data requirements

The acquisition of the required data is often the most critical and time consuming portion of a project. Depending on the size and structure of the bank, setting up a stable, accurate data feed can take several months and can be a major risk to the project's success. This discussion will focus on FRTB data requirements with a focus on the new Standardized Approach. Data requirements will be compared to currently available data, and a plan to source other required data will be discussed. Brief overview of IBM Managed Data Service will be provided as this can be a potential source to plug in any data gaps.

Reporting requirements

The reporting requirements set out by the Basel committee and the local regulator will be examined and compared to the institution's

current reporting capability. In addition, current internal management reporting capabilities as well as desired new reports due to FRTB will be analyzed. The discussion will include preferred reporting tools, additional measures to be calculated and the appropriate aggregations.

Technical/operational scope analysis

FRTB will require up to 63 different ES calculations resulting in a significant increase in computation and aggregation time as well as operational complexity. This may lead to need for significant investment in hardware, grid software, use of high speed simulation models and moving to methods such as Least Square Monte Carlo (LSMC) for some products.

Several technical/operational based topics will be discussed including:

- Data flow analysis
- Number and profile of users
- Batch window requirements and available hardware
- Number of environments and required hardware
- Setting up and monitoring of runs and amendment processes
- Analysis and investigation of risk results
- Multi jurisdiction regulatory requirements
- Switch over requirements for multi time zone operations
- Deployment approach: on premise, hosted, cloud, hybrid-hosted

Project planning

For efficient planning it is critical to identify regulatory and internal deadlines, as well as data availability. It is important to phase the project based on materiality and impact to be able to get internal buy-in as well as regulatory approval on the plan.

Deliverables

System readiness report

IBM will prepare a written report summarizing the existing systems infrastructure, target FRTB system, gaps and approaches to bridge the gaps in terms of data and functionality based on on-site discussions as well as any follow-up discussions and investigations.

Requirements analysis

The report will contain sections listing each of the major requirements as well as major gaps that were identified during the assessment. For each gap, the report will state its relative importance and potential approaches to bridging the gap.

Recommended implementation plan and timelines

The report will contain recommendations regarding implementation plan and related milestones. If desired, several options can be considered. For instance, a bank may wish to know

the best implementation plan to achieve regulatory compliance as quickly as possible, or an implementation plan that balances internal business benefits with regulatory compliance.

Some of the topics include:

- Inventory of high level data requirements
- Listing of essential functional requirements such as stress testing and back testing requirements
- Personnel and skill sets required for a successful implementation
- Technical deployment options and recommendations
- Suggested project phases and roll-out order

Estimate of implementation cost

IBM can include in the report an estimate of the cost associated with each implementation option considered. Costs considered include:

- Software License cost based on IBM's solution pricing
- Implementation services and support costs
- Hardware
- Potential complementary consulting services

This will be a very high level indicative cost estimate as detailed costing would require a detailed discovery process. Estimates in this report are only indicative, and IBM is not contractually bound to honour any cost listed in the assessment report.

This document can serve as a blue print for the bank to enable its move towards FRTB compliance while leveraging the regulatory exercise to improve internal business processes.

Engagement assumptions and exclusions

- It is estimated that this engagement will take about 15 days of effort with a duration of 3-4 weeks for IBM Risk Analytics services team consisting of a Consulting Manager, Financial Engineer, Integration Engineer and Project Manager.
- We assume availability and accessibility to key experts in the bank to complete the report on time.
- On-site engagement will include 3 days of a Financial Engineer and 2 days each of Integration Engineer and Project Manager.
- Target model will be based on the current version of FRTB which is expected to evolve as the regulations finalize.
- All estimated values and costs are high level, not contractually binding

Additional services

In addition to the System Readiness Assessment, IBM can help the bank in the following related areas:

- Capital Impact Study: especially the impact of FRTB on the various trading desks using a combination of beta software and ad-hoc approaches

- Help the bank with any subsequent quantitative impact studies
- Detailed data gap analysis
- Detailed project implementation plans

Key activities

The FRTB Systems Readiness Assessment includes the following key activities:

- On-site engagement
- Written report listing key FRTB related activities
- Budget, resourcing and timeline estimations

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Produced in the United States of America
October 29, 2015

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