

Addressing FRTB with Oracle Financial Services Analytical Applications



Disclaimer

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.



The Fundamental Review of the Trading Book programs will be painful, onerous & expensive to implement, but with a clear vision, backed up by the right investments in technologies, people and processes, it can be turned into a strategic business process. The Oracle Financial Services Analytical Applications solution brings in capabilities from **Numerix** while creating a foundational system for the future that gives financial institutions the visibility and flexibility required to comply with the FRTB standards.

OFSA FRTB Solution

KEY FEATURES

- » Full suite of capabilities to support both the Standardized and Internal Models Approaches
 - » Reassurance of robust pricing delivered by market leading Numerix engines
 - » An unrivalled data management and governance framework
 - » Agility to keep FRTB programs on track
-

KEY BENEFITS

- » Industry standard robust pricing models from **Numerix** covering wide range of assets including complex derivatives and structured products
 - » Open to review, business definitions controlled through intuitive web interface
 - » Easy maintenance and upgrade, Low ownership cost
 - » Scalable infrastructure
 - » Integrated risk and finance data model ensuring compliance with Risk Data Aggregation as per BCBS239
-

The Fundamental Review of the Trading Book Overview

In January 2016 the Basel Committee on Banking Supervision (BCBS) issued standards for minimum capital requirements for market risk, more commonly known as Fundamental Review of the Trading Book (FRTB). Following three consultative documents on FRTB the new market risk framework consists of the following key changes:

- » A revised internal-models approach (IMA)
- » A revised standardized approach (SA) also known as sensitivities-based approach (SBA)
- » Move from Value-at-Risk (VaR) to Expected Shortfall (ES) measure of risk
- » Incorporation of risk of market illiquidity by introducing liquidity horizons into revised SA and IMA
- » More objective boundary between banking and trading book

Regulatory Compliance and the Market Risk Capital Calculation

FRTB completely replaces the Market Risk Capital regulation under Basel 3. The new approach for capital calculation is different and requires organizations to develop new policies and updated systems to comply. Benefits of the new approach include:

- ✓ Assists financial institutions to comply with regulatory guidelines of capital computation and reporting
- ✓ Calculate IMA capital using outputs of portfolio VAR and validation service
- ✓ Calculate SA capital using sensitivities based method, default risk charge & residual risk add on.
- ✓ Floor test for IMA capital with Standardized Approach Capital Charge
- ✓ Calculate total market risk capital requirements

Key Functional Capabilities of OFSAA solution

Standardized Approach (SBA)	Internal Models Approach (IMA)
» Identification of instruments applicability for various risk charges	» Classify risk factors into prescribed regulatory categories
» Sensitivity Based Method: Sensitivity and Risk Charge Computation for all risk classes – GIRR, Non Securitization, Securitization Correlation Trading Portfolio, Securitization Non Correlation Trading Portfolio, Foreign Exchange, Equity and Commodity	» Identification of modellable and non-modellable risk factors using user defined criteria » Determine reduced set of risk factors based on variance, co-variance and correlation techniques
» Delta Risk Charge for each risk class taking delta sensitivities followed by netting and aggregation within and across buckets using correlation	» Identify 12-month stress period over observation time » Default risk charge calculation: Banks can use OFSAA model or plug-in their own
» Vega Risk Charge for each risk class taking Vega sensitivities followed by netting and aggregation within and across buckets using correlation	» Liquidity adjusted expected shortfall calculation for current and stress period using full and reduced set of risk factors
» Curvature Risk Charge for each risk class taking upward and downward shock and aggregation using correlation	» Stressed capital add-on calculation for non-modellable risk factors
» Default risk charge computation for Non Sec, Sec Correlation Trading Portfolio and Securitization Non Correlation Trading Portfolio	Model Validation » Back testing of VaR model and P&L attribution » Three zone (R-A-G) approach to interpret back testing results » Determine eligibility of trading desks to follow IMA

- » Residual risk add-on - to be calculated for all instruments bearing residual risk separately and in addition to other components of the capital requirement

Reporting

- » Pre configured analytical reports using Oracle Business Intelligence

Comprehensively Addressing FRTB

Oracle Financial Services Analytical Applications' (OFSAA) FRTB solution enables banks to accurately measure, evaluate, monitor and manage the risk of loss in their trading books and to proactively comply with regulatory requirements of capital calculation for Standardized Approach and Internal Models Approach followed by regulatory reporting. This solution combines OFSAA's award winning credentials with the deep expertise and analytics of Numerix and its industry leading [Numerix® CrossAsset Server](#) to ensure all critical elements of an FRTB program from pricing, valuations, risk assessment, monitoring and management, stress testing to data governance, data storage and final regulatory submissions are fully addressed.

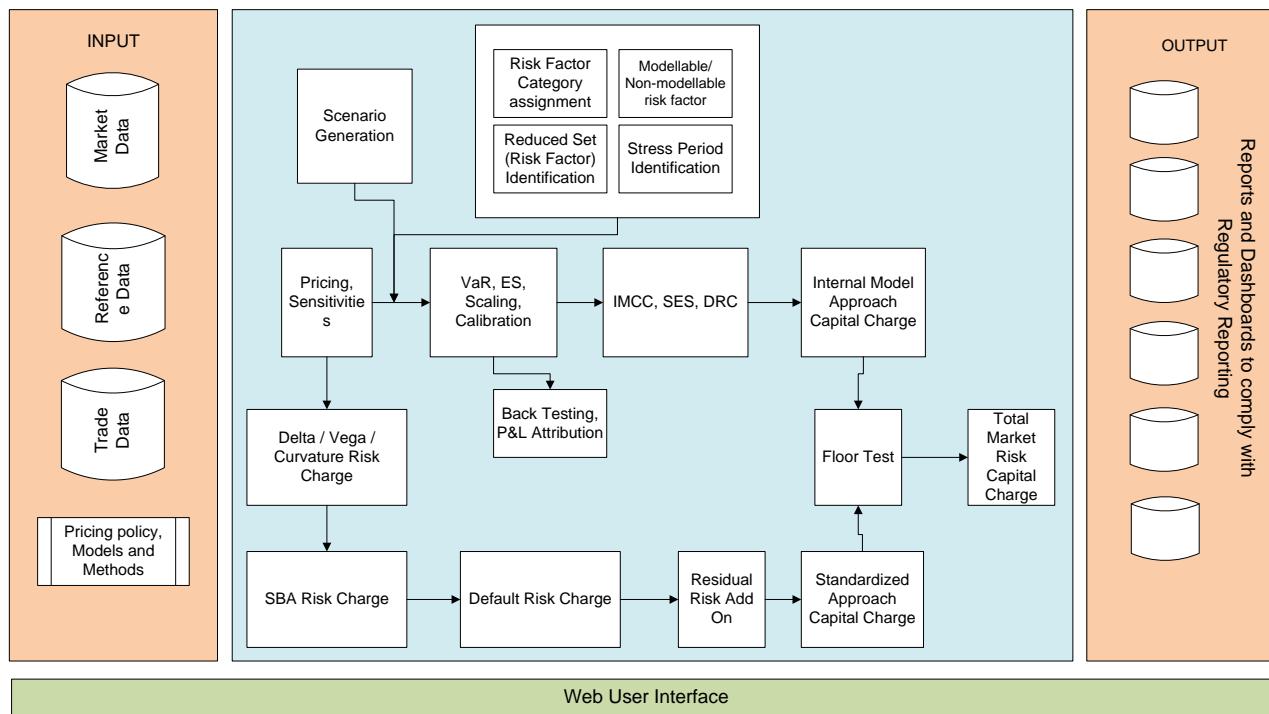


Figure 1: OFSAA's FRTB Solution Process Overview

The solution gives financial institutions the flexibility for pricing and managing complex derivatives and structured products while providing robust risk computations and in-depth attribution analysis. Organizations can use it to compute Market Value, Greeks, sensitivities and both Market Risk (VaR, ES) and Counterparty Risk (CVA, DVA, PFE, EE).

Furthermore, OFSAA enables financial institutions to leverage existing investments, helping drive down the costs of compliance. The OFSAA applications can coexist with your organizations incumbent Trading Front Office systems and OFSAA's unparallel data management capabilities can help safeguard the data governance and protocols, which are pivotal to implementing a successful and effective FRTB program.

OFSA comprehensively addresses the following key challenges posed by FRTB:

Operational Challenges	OFSA Approach
Intensive computation: FRTB requires daily computations involving <ul style="list-style-type: none"> » multiple iterations of expected shortfall for a range of liquidity horizons, risk factors and scenarios under IMA » sensitivities calculations followed by aggregation using large correlation matrices for SA 	OFSA solution is built for high performance using proven Oracle and other industry relevant technologies thereby giving banks a clear advantage
Consistent use of valuation models for regulatory and internal risk: FRTB requires that valuation models embedded in both regulatory and internal risk models should be similar	OFSA enables creation and usage of multiple pricing policies that can be shared across different units of the bank
Track back testing and P&L attribution exceptions: During periods of significant cross-border financial market stress there could be many back testing exceptions even when using accurate desk level models.	OFSA offers and automated process to track all results including exceptions and underlying market data, in line with the bank's policies and procedures
Sensitivity to bad data: ES computations incorporating averaging are susceptible to extreme values	OFSA data management tools help limit the impact of poor data on ES calculations by ensuring its validity via a set of rigorous data quality and cleansing techniques

As the 2019 FRTB deadline looms over financial institutions, firms must prepare today to create a foundational system for the future that gives them the visibility and flexibility required to comply with the FRTB standards. The OFSA architecture encompasses a unified data foundation, expanded data modeling and governance capabilities, next-generation model validation and governance, advanced predictive analytics, and extensive automated reporting capabilities, to help financial institutions transform their front-to-back operating models and be well positioned for the regulatory and business challenges ahead.

About Oracle Financial Services Analytical Applications

Oracle Financial Services Analytical Applications bring financial institutions best-of-breed capabilities to proactively manage Financial Crime, Compliance, Risk, Treasury, Finance and the Front Office. The applications are built upon a commonly available analytical infrastructure consisting of a unified financial services data model, analytical computations, a Metadata driven "R" modeling platform, and the industry-leading Oracle Business Intelligence platform.

A single, unified data model and infrastructure provides one version of the analytical "truth" to business users throughout the entire enterprise. This enables financial services institutions to confidently manage performance, governance, risk and compliance. Shared data, metadata, computations and business rules enable institutions to meet emerging business and regulatory requirements with reduced expenses and the unified platform helps financial institutions to leverage existing investments.



2017 Top Three



2017 Category Winner
Risk Data Aggregation & Reporting



2017 Category Winner
Risk & Finance Integration



Winner
Risk data repository and data management



CONNECT WITH US

- blogs.oracle.com/oracle
- facebook.com/oracle
- twitter.com/oracle
- oracle.com

Integrated Cloud Applications & Platform Services

Copyright © 2018, Oracle and/or its affiliates. All rights reserved. This document is provided *for* information purposes only, and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group. 0718