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Meeting FRTB's Internal Model Approval with Bloomberg TOMS & Risk.

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As the landscape for regulatory compliance continues to evolve, sell-side market risk managers must focus on the current requirements of Basel 2.5, while also paving the way for their banks to comply with new regulations that will go into effect soon. In particular, many firms are undertaking a substantial effort to overhaul the market risk technology stack in preparation for the Fundamental Review of the Trading Book (FRTB), and the significant impact it will have on the business.

The Basel Committee on Banking Supervision's (BCBS) Market Risk Group is set to finalize the FRTB by the end of 2018, with implementation slated for January 2022. One of the focal points of the new rules is to address shortcomings that are evident in the Basel 2.5 revisions from 2009. FRTB will amend the Basel 2.5 framework and introduce stricter rules for the treatment of market risk across jurisdictions.

Though a 2022 deadline for implementation may seem far off, firms that are adopting an Internal Models Approach must run their models for a year in advance in order to be approved by the regulators. With that requirement in mind, banks must target the middle of 2020 as an essential milestone on the path to FRTB implementation.

Making the right choices in preparing for FRTB now can prevent costly, long-term mistakes. That's why it is critical for all firms to understand the key differences between Basel 2.5 and FRTB, anticipate the changes to their business, and identify the tools and partners they will need to help them achieve a successful implementation.

Migrating from Basel 2.5 to FRTB

The Basel 2.5 Internal Models Approach (IMA) calculates market risk capital in terms of Value-at-Risk (VaR) and stressed VaR, with backtesting of the model required in order to gain regulatory approval. The FRTB introduces a more stringent IMA, backed up by a significantly more risk-sensitive Standardized Approach (SA). The SA calculation is driven by risk sensitivities, risk weights, and multi-level formulas based on bucketing and netting rules that are specified in detail by the Basel Committee.

In terms of the differences in approach, the FRTB IMA replaces VaR with expected shortfall (ES), and also requires proof that the risk factors used in the model are derived from sufficiently liquid instruments. This is known as "modelability." In addition, banks must demonstrate that their risk models are sufficiently aligned with their front office models by passing a set of P&L attribution tests that the Basel Committee is still finalizing.

Firms that cannot meet the IMA criteria must calculate their FRTB capital based on the Standardized Approach alone. However, the capital requirements are expected to be much higher for desks that rely on SA, rather than IMA. Therefore, evaluating the pros and cons of each approach is critical for each desk and the firm as a whole.

Meeting IMA requirements presents correlated challenges

Maintaining IMA approval includes a quandary, particularly for firms with fixed income desks:

- The modelability of the underlying risk factors can be difficult to prove, especially where a significant number of underlying risk factors require additional data (e.g. fixed income).
- Reducing the granularity of the risk factor set can help with modelability, but may lead to a failure of IMA P&L attribution tests. These tests require two different measures, the Risk Theoretical P&L and the Hypothetical P&L, to be calculated and compared.

The P&L attribution tests are meant to ensure that the way each instrument is represented in the capital calculation does not diverge too far from how it is represented on the trading desk and marked-to-market.

In this context, Risk Theoretical P&L is a proxy for realized P&L, based on: (a) the market model implemented for the IMA risk calculation, and (b) moves in the risk factors used in the model (using data taken from the middle office risk system). Hypothetical P&L is a proxy for realized front office P&L, taken from front office pricing models.

The P&L tests are calculated monthly and reported prior to the end of the following month. If a desk falls in the "red zone," it will be required to move from the IMA to the SA; this may result in a significant increase in capital requirements. Adding to the complexity, the precise methodology used to compare the two P&L measures is still being finalized by the Basel Committee, with measures of correlational and distributional similarity (Kolmogorov-Smirnov or Chi-squared metrics) now apparently being preferred.

Regardless of the precise form the P&L attribution tests eventually take, a high degree of alignment between front and middle office data and analytics will be required. If there are significant differences between front office analytics and middle office analytics, there is a high probability of failing one or both of these tests. Consistency will be the key.

FRTB & Fixed Income

Fixed income is one of the most difficult asset classes to model for IMA obligations. This is due – in part – to the following issues:

- Each bond price needs to be mapped to a significant number of risk factors (FX, risk-free curves, risky curves).
- There may be additional inputs (OAS or Z-spreads).
- Credit Default Swap (CDS) curves have reduced availability and liquidity since 2008, which may significantly impact modelability for fixed income and credit trading.
- The use of different systems and/or methodologies between the front office and the middle office may cause variations in results.

While the situation with FRTB in general, and fixed income in particular is daunting, tools and technologies are available to assist in the process before, during, and after implementation in 2022.

Using Bloomberg solutions for FRTB compliance

Bloomberg offers a range of solutions to help banks adjust to and comply with the upcoming FRTB IMA regulations. These capabilities are fully integrated with Bloomberg's Trade Order Management System (TOMS), which is the most widely used cash and fixed-income OMS in the world.

Bloomberg helps banks model credit risk curves through its evaluated pricing service, BVAL, which provides a deep library of defensible issuer curves and sector curves across the Government, Agency, Investment-Grade Corporate, and U.S. Municipal bond categories. Due to the liquidity (or lack thereof) of the CDS market as a source for credit risk factors, Bloomberg strips the bond curves available through BVAL in order to isolate risk-free, risky, and Z-spread components.

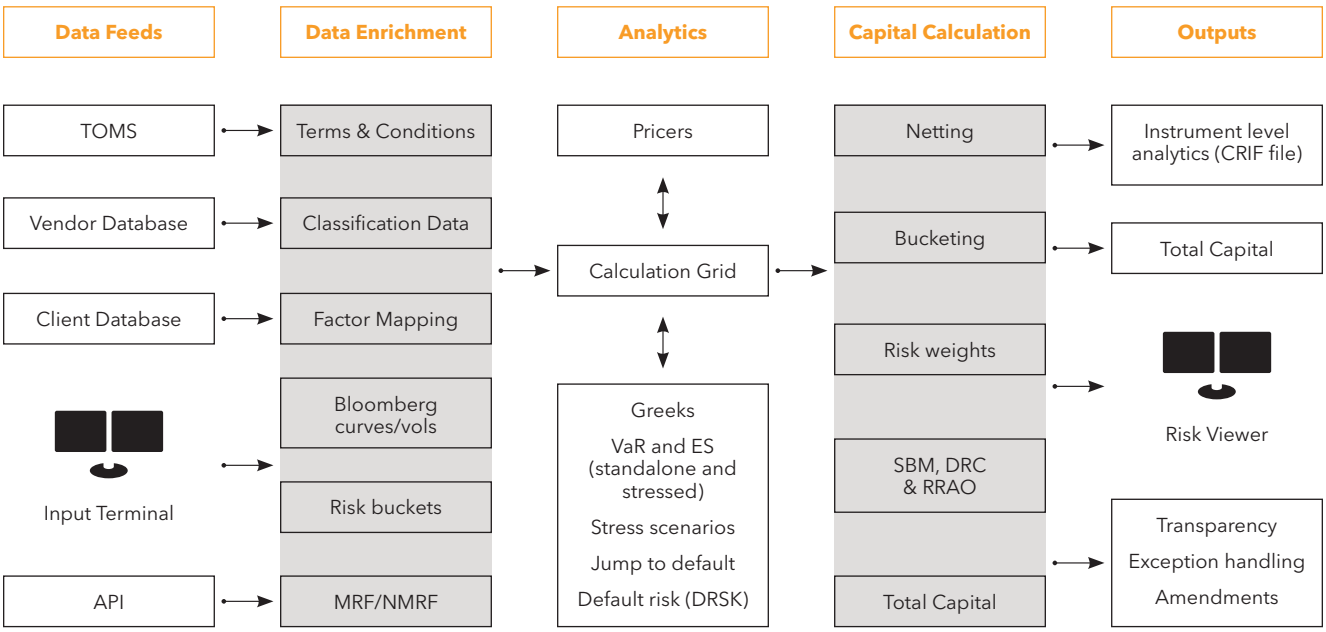
Bloomberg evaluates and tracks its credit risk curves for modelability, in order to provide its clients with a wide array of credit risk factors that will pass that test. This helps to ensure a minimal impact of capital add-on charges due to non-modelable risk factors.

In addition, firms can use Bloomberg's risk factor data set as an input to their internal regulatory market risk processes through the Enterprise Data platform. This is available within the Multi-Asset Risk Solutions for Market Risk as part of a complete FRTB offering.

Managing Risk on MARS

A comprehensive range of risk management tools – including front office intra-day risk, XVA, collateral management, and market risk–resides within Bloomberg's Multi-Asset Risk Solutions (MARS) offering. MARS is a holistic market risk solution that incorporates front office pricing models including equity, cash, fixed income, derivatives, mortgages, and structured products.

The platform provides banks with the analytics needed for compliance with current regulatory requirements, including data configured specifically for FRTB, such as risk classes and factors, bucketing, and verification of both modelable and non-modelable risk factors. MARS is fully integrated with Bloomberg's TOMS for firm-wide consistency of analytics, and can also be used with proprietary and other vendor systems.



P&L attribution: solving both sides of the equation

Firms that use MARS Market Risk with TOMS will benefit from consistent analytics between the front office and risk management groups, which helps to align Hypothetical and Risk Theoretical P&L for the P&L attribution tests. MARS uses full front office pricing analytics for fixed income and derivatives, ensuring high quality of the IMA P&L attribution test inputs.

Also, by streamlining trade and quote data aggregation and integration through MARS Market Risk, firms can achieve data consistency across multiple analytics platforms as part of their FRTB workflow. MARS can be used with other OMS solutions, either separately from, or in combination with TOMS.

Reducing the regulatory burden

As the financial services industry prepares for the challenge of meeting the upcoming FRTB requirements, firms are fundamentally rethinking their workflows and technical architecture. An essential part of this undertaking is evaluating the tools already at hand that may lessen the inherent disruption and costs.

Our clients have found that Bloomberg can provide flexible options for firms to achieve deeper integration and faster implementation, within their existing workflows and systems. Whether using MARS Market Risk for the FRTB Standardized Approach as a "plug and play" analytics solution, or adopting Bloomberg analytics and data to pass the P&L attribution and NMRF tests for the FRTB IMA approval process, banks that already have their positions in TOMS can benefit greatly from a comprehensive, scalable solution designed to help address the regime changes posed by FRTB implementation.

To find out more, on the Bloomberg terminal click on FRTB <GO>, or email riskinfo@bloomberg.net.

About the Bloomberg Terminal.

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