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The Fundamental Review of the Trading Book: Implications and Actions for Banks

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The Fundamental Review of the Trading Book: Implications and Actions for Banks

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Executive Summary

The Fundamental Review of the Trading Book (FRTB) framework promulgated by the Basel Committee on Banking Supervision (BCBS) to improve accuracy and consistency of trading book capital requirements will necessitate rapid and potentially drastic change across all banks with a trading presence. Banks will need to take action to update and upgrade their models and methodologies, their data management, their IT infrastructure and their processes. And perhaps more significantly, banks' capital markets businesses will need to select optimized product and hedging structures, and reprice products. For some banks, this will lead to downscaling and even exit from business lines rendered unprofitable by FRTB. For others, there will be shifts in market share between products and banks.

The FRTB's core intent is to create a more stable, transparent and consistent capital framework. The BCBS continues to engage with banks to develop and refine the draft FRTB legislation with the aim of arriving at the right balance between systemic stability and the impact on both the financial industry and the real economy. The main goals of the proposed regulation include better capturing of tail and liquidity risks, elimination of regulatory arbitrage between the banking and trading book and ensuring comparability of capital requirements across jurisdictions and between internal model-based and standardized approaches. These intentions, if correctly applied in the regulation, are expected to have long-term benefits for the industry.

Nevertheless, a number of banks have expressed the concern that FRTB will lead to a significant increase in capital requirements which, combined with higher compliance costs, could decrease banking profitability. McKinsey estimates that the impact of FRTB for the internal model portion of the top 13 banks will be an average increase in market risk risk-weighted assets (RWA) of around 65 percent, with a significant range between banks depending on the composition of their trading books.¹ It is important to note that this estimation is for the internal model approach (IMA) portion of market risk RWA only, and does not take into account any further calibration by BCBS which is anticipated before the legislation goes live.

Calibration could see the net impact of the regulation diminished, with the impact being felt more significantly in terms of capital reallocation requirements between banks and business lines, rather than an aggregate increase. Similarly, if banks move off the internal model approach onto standardized methods, or if standardized becomes a floor to the IMA, there could be a far greater impact as well as a further capital reallocation. McKinsey's discussions with more than 20 banks in recent months suggest that this estimate of 65 percent is in line with banks' qualitative impact studies (QIS) estimates. Based on these discussions, the implementation of FRTB could create demand for roughly \$30 billion in new capital for the top 13 banks. This is for internal models only; the impact of the use of the standardized approach as a potential floor is still unclear and could create an additional increase in capital requirements.

With the FRTB regulation only now nearing finalization, banks are setting up and mobilizing programs to effectively manage the capital and operational impacts. At this stage, these programs are primarily driven by risk functions, but a number of banks are taking a holistic approach, bringing front office, finance, operations and IT to the table. Banks leading the way are already considering rigorous "technical" enhancements to better manage the expected impact of the regulation (e.g., sourcing of more granular reference data, change in risk factors used in IMA), but must also contemplate strategic business decisions while there is still time to realign their portfolios and

FRTB is one of a number of new regulations facing the capital markets industry in the coming years, so its impact should be considered in the context of the broader regulatory environment. No regulation acts in isolation, and neither should banks' response to it.

¹ McKinsey estimate based on the draft specifications issued by the BCBS in July 2015 before final calibration by the BCBS.

trading activity before the regulation goes live. Importantly, FRTB is one of a number of new regulations facing the capital markets industry in the coming years, so its impact should be considered in the context of the broader regulatory environment. No regulation acts in isolation, and neither should banks' response to it.

There should be no illusions as to how dramatic the impact of FRTB will be on all banks with significant trading operations. There are five critical next steps banks should take to ensure that they will be prepared for the regulation when it takes effect:

1. Mobilize a cross-functional program team
2. Fully clarify FRTB requirements and target design
3. Conduct business reviews including product-level impact analysis
4. Design and implement specific enhancement developments
5. Consider implications of all trades with expiry post 2017

Considering the significant lead times required to put operational requirements in place, and the time it will take to adjust business approaches in light of the maturity profiles of their products, banks need to acknowledge that in the first half of 2016 the window will close to ensure programs are well scoped and have the right momentum. They thus need to take quick and decisive action on these five imperatives.

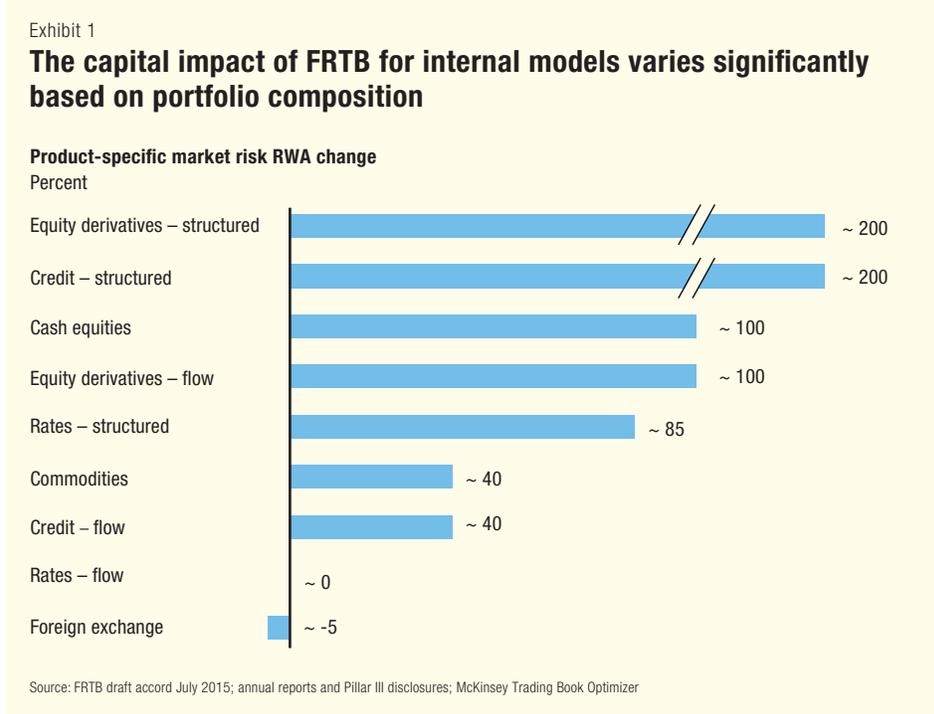
In Search of Systemic Stability

A number of banks have expressed the concern that FRTB will lead to a significant increase in capital requirements which, combined with higher compliance costs, could decrease banking profitability. However, most agree that FRTB's core intent—to create a more stable, transparent and consistent capital framework—will have long-term benefits for the industry. The BCBS intends to finalize the core regulation by the end of 2015 for a go-live in 2018, at the earliest, but will likely delay to 2019. In the meantime, the BCBS continues to engage with banks to develop and refine the legislation, and to arrive at the right balance between systemic stability and the impact on both the financial industry and the real economy. Further calibration, in particular on the profit and loss attribution requirements, will be held once the regulation has been finalized.

The main goals of the proposed FRTB regulation include:

- Better capture tail and liquidity risks
- Eliminate regulatory arbitrage between banking and trading book
- Ensure comparability of capital requirements across jurisdictions and between internal models-based and standardized approaches

The series of consultative papers provide a clear guide to the most important components of the draft regulation. There are 10 core elements, some of which apply to the trading/banking book boundary and to the standardized approach



(and therefore to all banks), and some only to those on the internal model (see appendix on page 18 for details).

Impact on capital and return on equity

McKinsey conducted an outside-in assessment of the likely capital impact of the regulation (prior to calibration) using Pillar 3 disclosures and the Trading Book Optimizer, a proprietary McKinsey tool. An analysis of the top 13 capital markets and investment banks found the average expected market risk RWA increase to be approximately 65 percent. Banks with more structured products will experience a larger increase of up to 110 percent due to the impact of longer liquidity horizons and the capturing of tail risk (Exhibit 1). This average impact is broadly in line with the outcomes of the QIS analyses.² It is worth noting that during QIS efforts the majority of banks successfully implemented liquidity horizons but failed to compute capital charges on non-modellable risk factors (NMRFs) and the default risk charges (DRC) on equity instruments, which suggests that a fuller analysis would likely have led to a higher outcome.

² The recent BCBS publication on the interim impact analysis (BCBS d346) mentions 54 percent increase on average.

The assessment of capital impact is based on impact for banks already on an internal model approach. The more stringent requirements around internal model approval at the desk level could see a number of banks having a greater part of their portfolios covered under the standardized approach. Since the standardized approach typically leads to a higher RWA requirement, this could further exacerbate the impact on those banks.³ Additional RWA increases may result if regulators impose a standardized floor on IMA market risk. Depending on the multiplier applied to this measure, this could dwarf the increases already discussed.

The impacts discussed above are likely to lead to reallocations of RWA not only within banks but across the industry. Banks will be forced to hold more capital against certain product categories and to change their portfolio allocations according to their individual constraints and ROE hurdles.

FRTB will also affect banks' methodologies, data, processes and systems (Exhibit 2).

Impact on methodologies

The draft regulation creates many challenges for market risk methodology teams both for the IMA and for the revised standardized approach. The highest-impact areas include the following:

Non-modellable risk factors (high impact): Banks will have to detail and implement the high-level identification criteria given in the consultative paper for non-modellable risk factors. Given the substantial likely impact on capitalization, this will be a crucial task.

Default risk (high impact): Banks will need a jump-to-default methodology that applies also to equity exposures. Most banks will have to develop it from scratch.

Revised standardized approach (medium impact): While the overall approach is outlined in the draft regulation, details such as offsetting and hedging logic for securitizations and the correlation trading portfolio need to be carefully treated in order to realize the resulting capital benefit.

³ As per the interim impact analysis by BCBS, the new standardized approach bears 128 percent higher capital requirements than the current one.

Exhibit 2

FRTB will impact bank methodologies, systems, data and processes

Low Medium High

FRTB elements	Methodology	Systems	Data	Processes	
1 Trading/banking book boundary		Reference data flag for position allocation to trading or banking book		Governance for position allocation & internal risk transfer; Clean-up of current books	
Internal model approach	2 Expected shortfall (ES)	ES model calibrated to stressed period (using reduced set of risk factors)	Daily full revaluation capability for ES and monthly stressed period identification	FRTB risk measures (ES, DRC, NMRF charges) in production and reporting processes on regulatory desk-level	
	3 Stressed calibration				
	4 Liquidity horizons	Mapping of risk factors into liquidity horizon categories	Run and aggregation capacity for liquidity horizon scaling and constrained diversification		High-quality market data (back to 2005) and reference data
	5 Diversification restriction				
	6 Default risk	Methodology for equity default exposure	Platform & data feeds for equity default calculation		
	7 Non-modellable risk factors (NMRF)	Methodology for NMRF identification/capitalization	Platform for risk factor evaluation and capitalization		Market data requirements for modellable risk factors
	8 Approval and validation		Alignment of risk factors and book hierarchies		Approval, back-testing and P&L attribution on regulatory desk-level
Revised SA	9 Revised standardized approach (SA)	New SBA methodology, in particular off-setting and hedging logic for securitizations and correlation trading portfolio	Platform for SA calculation	Reference data for SA calculation (tenor, region, sector, ...)	
	10 Application of SA				FRTB risk measures (SA charges) in production and reporting processes on regulatory desk-level

Source: McKinsey

Impact on systems

Existing market risk infrastructures will need to be augmented to ensure sufficient capacity for the parallel calculation of IMA and standardized approach risk metrics on a trading desk level.

Liquidity horizons and constrained diversification (high impact):

Significantly higher calculation capacity will be required compared to that for current value at risk (VaR) calculations. Banks will have to run multiple full revaluation scenarios in order to calculate expected shortfall taking into account different liquidity horizons as well as constrained and unconstrained diversification configurations. Banks estimate an increase in number of full revaluation runs by a factor of 5 to 10.

Revised standardized approach (high impact): A new or revised platform for calculating standardized capital charges will be needed; few current calculation environments can cope with calculation or the aggregation of sensitivities.

Expected shortfall (medium impact): Banks will need to build the capability to fully revalue positions on internal model-based approaches on a daily basis and identify the stressed period every month.

Non-modellable risk factors (medium impact): Systems for risk factor identification need to draw on real price data and be closely linked to the market data repository and potentially to a stress-testing platform in order to calculate capitalization.

Approval & validation (medium): Alignment of the underlying risk factors and book hierarchies between, for example, risk and finance systems need to support regular P&L attribution and back testing, which must be validated for every desk in scope of internal model approval.

Changes to the market risk data that banks must hold are driven by increased requirements and the sensitivity of the FRTB approach to market and reference data.

Impact on data

Changes to the market risk data that banks must hold are driven by increased requirements and the sensitivity of the FRTB approach to market and reference data. This area is particularly challenging as many banks lack a coherent framework for sourcing, cleansing, storing and distributing this data.

Expected shortfall, liquidity horizons and constrained diversification (high impact): Higher-quality market data will be required because of the sensitivity of the expected shortfall measure to tail events. Also, the proper mapping of positions to risk factor classes will depend on correctly assigned reference data.

Stressed calibration and non-modellable risk factors (high impact): The sourcing, storage and processing of market data will need to be extended, both for expected shortfall calculation and to prove the mod-
elability of risk factors. This will be particularly difficult as the data provider landscape is fragmented and a time series going back ten years will be required. The NMRF concept requires capturing a sufficient number of real price observations, which may be challenging for a bank alone and may require data pooling.

Revised standardized approach (medium impact): Banks will need comprehensive reference data well above current market risk stan-
dardized approach (MRSA) requirements to ensure correct mapping of positions during aggregation of sensitivities—that is, across industries, commodity types, tenors and currencies—to avoid mapping into residual buckets with the most punitive risk weights or correlation parameters.

Impact on processes

Changes to market risk processes will be needed to enable a more prudent approach to assigning positions to trading or banking books, as well as for validating internal models at the level of the trading desk.

Approval and validation (high impact): Initial approval for internal model usage and continuous validation of the results will be needed for each trading desk. This will require dedicated resources and a more auto-
mated approach to backtesting and P&L attribution.

Revised trading book/banking book boundary (medium impact): Governance and internal control processes regarding the assignment of positions to trading book/banking book and internal risk transfers will need to be strengthened, potentially on a position-by-position basis.

Revised standardized approach (medium impact): Standardized risk charges will need to be integrated into the daily production, sign-off and reporting processes. Depending on the current setup at each bank, a re-alignment of responsibilities between the risk and finance functions

may be required, as risk factor information, such as sensitivities, is usually handled today by risk.

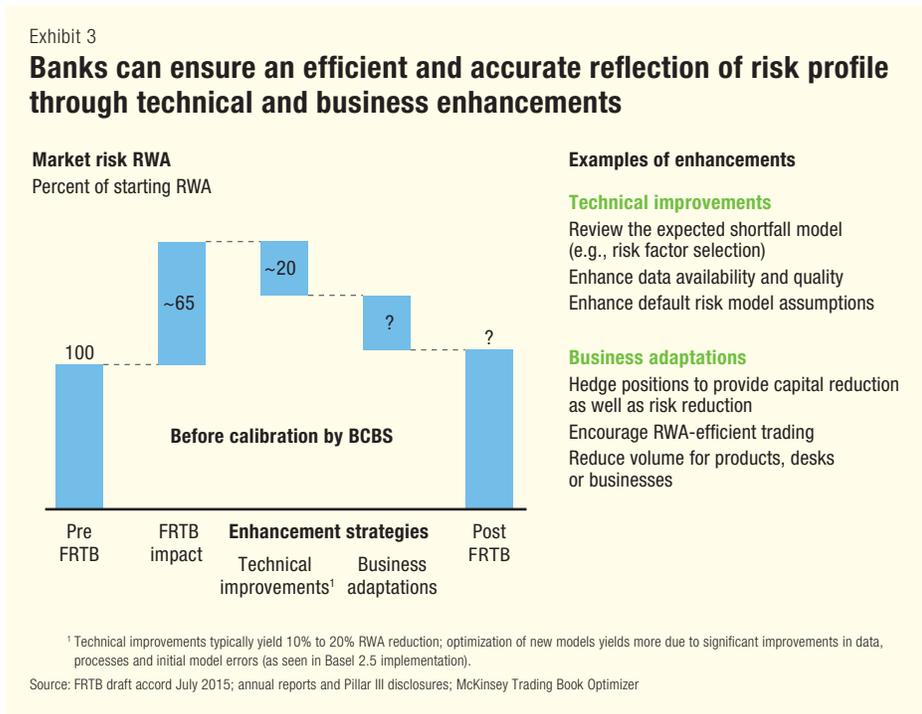
Achieving compliance with the FRTB regulation will present a significant challenge to the banking sector due to the number of new concepts introduced, such as non-modellable risk factors and the sensitivity-based standardized approach, as well as the more granular approach to measuring market risk at the desk-level. Even with a well-resourced program and buy-in from the highest levels of the organization, aligning all the moving parts within the organization will likely require about 18 to 24 months of concerted effort.

A Holistic Response

Most banks launched and mobilized an FRTB program over the course of 2015, according to McKinsey flash surveys. In virtually all of the banks surveyed, these programs are being led by the risk function. The surveys indicate that most banks have begun considering technical enhancements. McKinsey estimates that effective implementation of these technical enhancements could pull back about one third of the expected impact and produce a more accurate reflection of the banks' risk profiles.

While their initiatives are yet to be fully launched, some banks have already made progress in assessing different modelling options and started data-cleansing efforts. They have secured budgets for implementation ranging from \$10 million to \$20 million for medium-sized banks to \$50 million to \$100 million for large banks, according to the surveys. While these actions are a good start, they need to be fully scoped and incorporated into an implementation program that takes into account methodology, IT and infrastructure to ensure timely delivery.

Most banks are planning to have designed their target infrastructure by the beginning of 2016 and to implement their target models and architecture within a year. This would allow them to have a full parallel run through 2017 in preparation for the postulated go-live of the regulation at the start of 2018 (which is expected to be delayed to the start of 2019). Until recently, banks have dedicated the majority of their FRTB-related resources to the various QIS rounds, but to achieve their timeline goals, they must now dedicate resources to implementation and the substantial challenges of adapting their existing IT architectures to the expected new requirements.



Given the expected significant pre-calibration capital impact of FRTB, banks need to employ all the weapons at their disposal to minimize this impact. Few banks, however, have given significant consideration to how business adaptations can help in this effort. The effect of typical business adaptations such as product realignment and altered hedging strategies is difficult to estimate, and will vary widely depending on the degree of action taken (Exhibit 3).

The business has to be deeply involved, and must consider the implications of desk-level internal model approval on desk structures as well as trader mandates. Given the different impact on products, they will need to consider changes to their product portfolio. These decisions will be complicated by competitive dynamics, especially where the balance of price elasticity and capital impact might make some products less appealing.

Two paths

McKinsey expects banks to follow one of two potential strategic paths, depending on their capital constraints and their perception of competitive dynamics.

Capital-constrained banks, and those which lack competitive scale, will likely refocus their product portfolios. They need to assess which products are core to their client base, where they have a market share advantage, and which products they expect to remain ROE-accretive after the implementation of the regulation. This analysis will lead to a paring back of, or perhaps a full exit from, business lines which are not profitable.

Banks that are less capital-constrained and operate at scale need to focus on where they can re-price to maintain profitability under a more capital-intensive regime. This assessment will hinge on supply and demand dynamics for each product, with the almost inevitable outcome that re-pricing will lead to some degree of volume reduction, particularly in more structured products where the capital, and therefore the re-pricing impact, is likely to be largest.

Regardless of the chosen strategy, risk management will need to work closely with the business to ensure that traders understand the capital implications of their trading and hedging strategies. Traders have long prided themselves on their creativity in hedging client risk in both a risk- and P&L-efficient manner. However, diversification restrictions could render these hedging strategies so capital inefficient as to no longer be viable. For example, cross asset class hedges may not be eligible for netting purposes and thus may add to aggregate RWA requirements. At the moment of a trade, traders need to understand the full ROE impact of their decisions, not only in terms of profit but also its impact on capital efficiency. Further, the practice of diversifying products to hedge may be challenged by new requirements for desk-level internal model approval. Desks cannot afford to risk losing their internal model status (assuming no binding standardized method floor is applied) by contaminating their portfolio with trades that have difficulties around back testing, or lack historical data points.

Overall, McKinsey expects that FRTB in conjunction with other regulatory changes will likely lead to reduced volumes, varying degrees of re-pricing by product, and major shifts in competitive position and market share among players.

Attacking the Challenge Head-On

The FRTB regulation will have a material impact on every bank with significant trading operations. The changes to be made are substantial and complex, and there is little time to waste if banks are to effectively manage both the capital and operational impacts of the regulation. An effective approach should incorporate five major activities:

1. Mobilize a cross-functional program team

Addressing the challenges posed by FRTB requires the involvement of stakeholders beyond the risk function. Teams from business, IT, finance and operations all need to play a role as well. A strong central team can foster cross-functional interaction to generate a strategic target design and to best allocate bank resources. This approach allows banks to leverage their existing programs and infrastructure and also to create solutions consistent with the priorities and capabilities of all stakeholders.

Banks that tackle the challenge function by function run the risk of overspending on implementation and ending up with incompatible solutions that require a high-cost scramble to correct.

Many banks had limited budgets set aside in 2015 for FRTB, but most will increase funding and resources to fully implement target design structures from 2016 onward. Many banks plan their budgets to complete target designs in time for full parallel runs through 2017, ahead of the planned go-live in 2018 (despite likely delay to 2019).

2. Fully clarify FRTB requirements and target design

A well-managed, cross-functional and fully resourced program can only be successful if all the stakeholders understand what they are trying to achieve and why. Therefore, the plan needs to be built on an in-depth understanding of

the full range of FRTB requirements, what these will mean for each unit of the organization, and the implications for changes in strategy and capital allocation.

Technical and legal experts may best understand the detailed FRTB requirements, but the full implications can only be grasped and appreciated when all stakeholders are at the table. Workshops with cross-functional representation that deal with distinct aspects of the regulation can unravel complexity and design challenges for each group. Some banks have dedicated regulation interpretation working groups in their FRTB programs. Tedious as it may sound, the key to success is breaking down the full draft regulation item-by-item and line-by-line to unearth its exact requirements. With this approach, teams can uncover opportunities to leverage existing programs and find efficiencies.

3. Conduct business reviews, including product-level impact analysis

As noted, banks will need to evaluate their product portfolios. From a capital perspective, the draft regulation will impact different products in different ways (as shown in Exhibit 1, page 5). Banks will need to examine the specifics of the products they intend to trade and expect to have on their books in 2018 so that they can make informed decisions as to where to refocus their franchises. Business lines need to engage closely with risk methodology to generate product-level assessment tools to predict where the pain points will be and how hedging practices may need to change. In an ideal world, this transparency would ripple out to a real-time, trade-by-trade assessment of portfolio impact, so that traders can make informed decisions on individual trades. This transparency however, is likely not within immediate reach for most players. But banks should attempt to develop transparency in their balance sheet to help their traders make informed decisions based on a broader understanding of the implications of their trades, as well as with an understanding of the bank's current position in capital, balance sheet, liquidity and funding, and most of the bidding constraints facing it.

A structured and sequential process for assessing product-level actions is best. The first step is to enhance transparency, determining capital and ROE impact at a product level. Next, banks should consider technical enhancement levers (such as enhanced modeling or data cleansing) and tactical business adaptations (such as adjusting hedging strategies) to assess the optimal level of profitability given an assumption of static pricing and

volumes. Finally, they need to consider portfolio adjustments based once again on granular ROE profitability assessments, but this time taking into account the likely competitive dynamics and changes in volumes and pricing depending on which competitors they expect to remain in the market.

4. Design and implement specific enhancement developments

Banks need an action plan that includes a delivery timeline that accommodates the dependencies between initiatives. The plan should specify both technical and business actions.

Ideally, the plan should take advantage of the experience of diverse groups. Resources can be pooled for activities that do not afford competitive advantage (such as data sourcing and cleansing) and where the benefits of scale point to a utility-like solution. This is the case within a bank but is also an opportunity for collaboration between banks. Many utility-like solutions require greater standardization of platforms than is currently prevalent in the market, but as banks seek to simplify their platforms to gain agility and interoperability, while reducing integration and transaction costs, solutions of this kind will be necessary. Discussions around market data utilities or data-pooling to reduce non-modellable risk factors are taking place between banks, but no major push has been observed.

Banks need to examine the specifics of the products they intend to trade and expect to have on their books in 2018 so that they can make informed decisions as to where to refocus their franchises.

While there are undoubtedly challenges to creating successful industry collaborations or utility-like solutions (e.g., due to the bespoke nature of each participant's needs), there is evidence that a unified approach can lead to significant declines in average cost for participants as well as an increase in automation. This in turn leads not only to a reduction in headcount requirements, but also to a reduction in operational risk. By way of example, utility solutions have already been accepted by the market in the space of market data provision and also in derivatives clearing. The required enhancements for FRTB are extensive, and therefore so is the potential opportunity for collaboration.

Platform projects should focus not just on technology but on business levers, such as changes in hedging strategies and alterations in desk configuration. Projects should also encompass more strategic business decisions about client coverage and product portfolios.

5. Consider implications of all trades with expiry post 2017

Finally, banks need to conduct an evaluation of their current portfolio in order to forecast the expected portfolio make-up at the time of FRTB go-live. This analysis should look at the maturity profiles of existing positions. Further, banks must institute a systematic review of new potential trades when the maturity is expected to extend beyond 2017. Trades done now need to be evaluated with an eye toward their future impact on capital and cost and not simply the myopic view of day-one profit and loss. In addition, banks should evaluate the cost benefit of selling out some existing positions ahead of the regulation's go-live, at which point these positions are expected to be severely impacted.

* * *

While the details of the FRTB regulation remain somewhat in flux, its impact will be substantial for any bank that does business in the capital markets space. This is not only an impact on capital, but one which will create major operational challenges for process, methodology and IT. Banks need to act now to prepare for go-live in 2018-19. Two to three years is not, in fact, very much time considering the pervasiveness and complexity of the required changes, the lead times for budget approval, the time needed for systems implementation and testing and, crucially, the maturity profile of products affected by the regulation.

The fact that the impact of the regulation will not be uniform creates both an opportunity and a threat for banks. Whatever the net change in capital across the industry, there will be winners and losers. Those that act quickly and decisively, with a well-crafted strategy and plan, may be able to convert FRTB into a competitive advantage.

Appendix: The 10 Core Elements Of FRTB Draft Regulation

1. Trading/ banking book boundary

Positions need to be assigned to the trading book based on their intended purpose or their inclusion in the presumptive list (e.g., listed equity and options presumed to be assigned to trading book). Permeability of the boundary will be reduced as switching of positions will require regulatory approval with the capital benefits only realizable over time.

Changes To Internal Model Approach

2. Expected shortfall

Expected shortfall with a confidence level of 97.5% over a base horizon of 10 days will replace VaR as the main risk measure. Expected shortfall must be calculated on a daily basis on a bank-wide level as well as for each trading desk with approval for an internal model.

3. Stressed calibration

A monthly calibration of the expected shortfall model to a period of significant stress is required. The underlying observation period needs to extend back at least 10 years. However, an indirect calibration approach based on a reduced set of risk factors can be used.

4. Market liquidity horizons

The risk of losses in case of market illiquidity is taken into account by extending mandated liquidity horizons. Depending on the risk factor category, these vary between 10 and 250 days and serve as factor for scaling the expected shortfall measure (e.g., 10 days for FX).

5. Diversification restriction

Only partial diversification benefits across the risk factor classes (FX, rates, equity, credit and commodity) can be realised under FRTB. The relative weight between capital charges for constrained and unconstrained diversification will be determined in the calibration phase of the FRTB framework.

6. Treatment of default risk

While migration risk is captured by expected shortfall, default risk is capitalized via a separate default risk charge (DRC). In contrast to Basel 2.5's incremental risk charge, the DRC applies to credit and equity positions and includes a floor for the probability of default.

7. Non-modellable risk factors

Risk factors without 24 real price observations are considered non-modellable for the internal approach and need to be separately capitalized using a stress scenario that is at least as prudent as the expected shortfall calibration.

8. Approval and validation

Banks need to nominate the trading desks to which the internal model approach should apply. Approval will be granted for the individual trading desks if backtesting and P&L attribution requirements as well as the capitalization level are satisfied.

Changes To Standardized Approach

9. Revised standardized approach

The capitalization of market spread risk in the standardized approach is based on sensitivities for individual risk factors which are then aggregated using pre-defined weights and correlations into a linear- and curvature-risk charge (enhanced delta risk plus). An additional charge for default risk and a residual risk add-on apply.

10. Application of standardized approach

Securitization positions will need to be capitalized under the standardized approach. Standardized capital charges need to be calculated and regularly disclosed to the regulator for all trading desks in order to serve as a fall-back option for the internal model approach. The use of the standardized approach as a floor or add-on to internal model charges is still being discussed.

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