

CAPCO

FRTB

THE ROAD TO 2023



SPEED READ

- All banks will now be required to calculate and report market risk capital requirements under a more sophisticated Standardized Approach (SA). Larger global banks which are likely to opt for the Internal Model Approach (IMA) to optimize capital requirements will also note significant changes to capital calculations, most notably the switch from Value at Risk (VaR) to Expected Shortfall (ES) and Stressed ES.
- The revised rules are expected to result in significant operational complexity for all market participants, including demand for high quality data, efficient and scalable computation engines, additional reporting overhead and stringent governance requirements. Those opting for IMA may face a significant increase in volume of capital calculations (up to 30 times in some cases). From a commercial standpoint, banks may choose to reconsider their offerings in capital intensive products, such as illiquid emerging market debt.
- Larger banks (typically G-SIBs) are likely to be relatively advanced on their FRTB implementation journey. However, supervisory surveys indicate that small / medium sized banks are already facing delays in relation to meeting the regulatory deadlines. While timelines have changed due to the global pandemic, implicit supervisory expectation is for banks to now meet the deadline to an even higher standard than before.
- Ultimately, all impacted banks need to ensure that FRTB implementation is clearly set out to be a key strategic priority for 2021-2022, with associated change programs being granted access to adequate budget and suitably skilled resources. Front-to-back collaboration across impacted functions, end-to-end infrastructure updates and continued engagement with market data providers will be critical to ensuring a smooth and successful go-live.

INTRODUCTION

Events such as the financial crisis of 2008 and ongoing market volatility resulting from the COVID-19 pandemic have emphasized how critical it is for banks to hold adequate capital buffers to protect against unforeseeable adverse market movements. In specific response to the 2008 crisis, the Basel Committee on Banking Supervision (BCBS) undertook a comprehensive review of market risk requirements and introduced a sweeping set of reforms in the form of the Fundamental Review of the Trading Book (FRTB) to address the potential systemic risks arising from such unprecedented levels of market volatility.

FRTB is expected to create a substantial upheaval in capital charge calculation, business strategy and overall risk architecture for Global Markets organizations. In the lead up to January 2023, banks are required to implement more sophisticated calculations under the revised Standardized Approach (SA). Larger global players that opt to go for the Internal Model Approach (IMA) to optimize capital requirements will also need to ensure compliance with complex internal model requirements, including comprehensive approval processes. In the EU, banks will need to ensure compliance with SA reporting requirements entering into force in September 2021. For UK firms, this deadline is likely to be January 2022. Banks, therefore, need to ensure that their FRTB programs are now a key strategic priority for 2021-22. This implies allocating sufficient budget and resource support to ensure the required implementation(s) are not only fully compliant with supervisory expectations, but also result in optimum capital charge requirements across all desks.

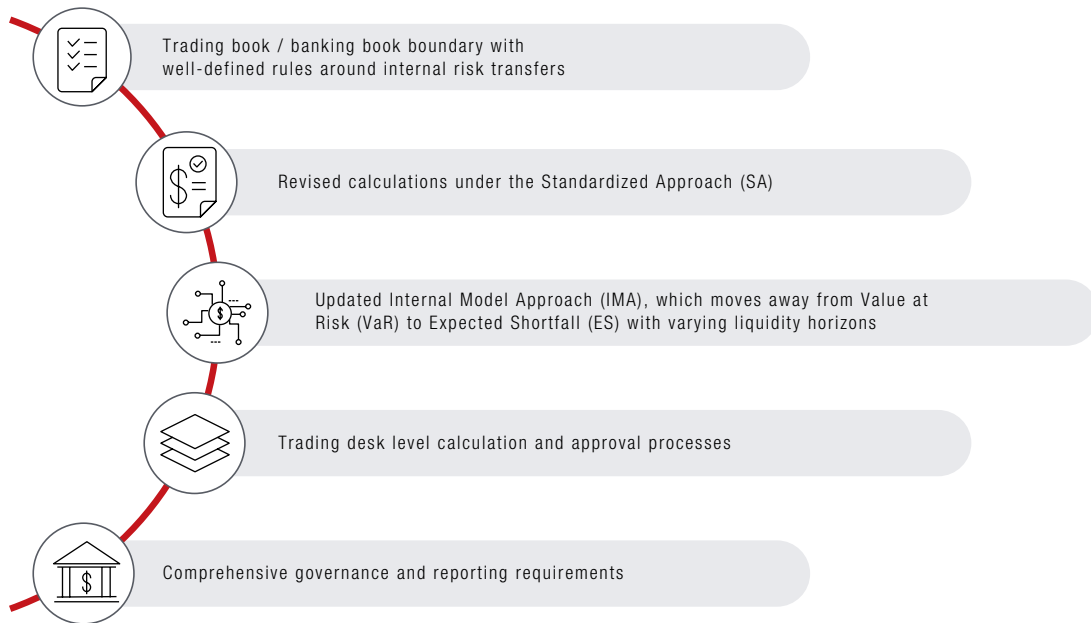
The revised FRTB rules present a number of implementation challenges that banks should work to avoid by means of a thorough approach and 'right-sized' investment. These include being forced to fall back to the Standardized Approach (SA) from the Internal Model Approach (IMA) if models cannot be approved by regulatory authorities, as well as punitive capital charge add-ons for non-modellable risk factors (NMRF) in the absence of a suitable repository and validated sourcing of sufficient "real" pricing data. Successfully navigating the associated complex computations and substantial data storage requirements, including stressed expected shortfall (SES) calculations for NMRFs, gives rise to substantial operational complexity and will require significant upfront investment in order to land a successful IMA deployment. Banks that opt for tactical implementation over more strategic solutions are perhaps more likely to find themselves sinking in the 'quicksand' of rapidly increasing technical debt and operational risk.

The complexity of FRTB implementation for an impacted bank bears a direct correlation to the size and complexity of its trading portfolio, the maturity of existing market risk infrastructure and associated governance and reporting processes. As a result, program budgets can range from less than \$20M for small / medium sized firms to over \$100M for larger G-SIBs. In some cases, the costs are even higher as banks leverage FRTB as an opportunity to undertake a strategic overhaul of their existing platforms.

This paper provides a brief recap of the revised rules, their impact on the financial services industry and key operational challenges for banks. Given implementation effort is likely to be well underway for a number of in-scope banks, it also outlines some recommendations to help organizations successfully navigate the final stretch of this tumultuous and challenging FRTB journey.

REGULATORY OVERVIEW

To recap, the updated requirements under FRTB cover all key aspects of the minimum capital requirements for market risk including,



From a risk technology perspective, the antecedent regulation is BCBS 239. In fact, FRTB is the truest test possible of that well intentioned regulation. The Adaptability Principle under BCBS requires that a bank should be able to generate aggregate risk data to meet a broad range of on-demand, ad-hoc risk management reporting requests, including requests during stress/crisis situations, requests due to changing internal needs and requests to meet supervisory queries.

FRTB now demands a response for the desired adaptability. Calculations must be adjusted, new calculations are to be introduced, and new reporting, aggregation and processes must be put in place for internal and supervisory requests. An organization that has successfully implemented not just the letter but the spirit of BCBS 239, is more likely to experience a relatively straightforward implementation of FRTB (or at least the technical aspects of the new rules). Those organizations who have not could be facing exponentially higher implementation costs and complexity, along with the likelihood of creating even further technical debt in order to hit impending timelines.

An adaptable organization is not just more resilient than its competitors. Adaptability becomes a competitive advantage through more efficient prioritization of available resources in terms of cost, timeliness, environmental hygiene and ongoing maintenance impact. For example, an adaptable organization with frequent, robust releases and flexible prioritization cycles can rapidly deliver adjustments or enhancements without the organizational effort and overhead of having to establish a comprehensive new change program each time the rules are updated.

REGULATORY TIMELINE

With the global pandemic significantly pushing out regulatory timelines, the revised market risk capital requirements are now due to enter into force in January 2023. While it is certainly tempting to think that this gives banks an additional 12 months to get through their FRTB Day 0 book of work, unprecedented levels of market volatility during 2020 – coupled with the challenges of remote working – have meant that FRTB has not always been top of the agenda for key stakeholders across impacted functions such as Market Risk. It is also worth noting that while the timelines are delayed, supervisory expectations remain unchanged. If anything, the delay has resulted in an implicit expectation that banks should be meeting go-live timelines to an even higher standard than previously expected.

Banks will also need to carefully navigate regulatory fragmentation across different jurisdictions, including varying timelines for additional reporting requirements under FRTB SA. For example, EU SA reporting is currently planned for go-live in September 2021, while the UK reporting timeline is likely to be January 2022 instead. However, the recent (February 2021) PRA and HM Treasury consultations on implementation of Basel 3 standards are not due to conclude until Q2 2021. Large G-SIBs that have established post-Brexit EU entities in addition to existing UK entities may, therefore, find themselves working towards different regulatory deadlines across the two supervisory regimes.

PHASE 1

- Banks to report updated market risk capital requirements under FRTB Standardized Approach (SA)
- Go-live: Sept 2021 (EU) / est. Jan 2022 (UK) / Jan 2023 (other jurisdictions)

PHASE 2

- Banks to meet updated capital requirements
- Go-live: Jan 2023

From an operational standpoint, additional SA reporting means that impacted banks are now expected to calculate and report under FRTB SA (whether or not certain desks go for IMA). In addition, banks that do opt and receive approval to use internal models for certain trading desks to optimize capital requirements, will also need to calculate capital requirements under IMA, with SA serving as a fallback to determine capital requirements.

The only exception to this is smaller banks with simpler trading books that may qualify for the Simplified Standardized Approach (SSA) – however, this is subject to supervisory approval and oversight at all times. Indicative qualifying criteria for this simplified approach requires that the bank should not be a globally systemically important bank (G-SIB), should not hold any correlation trading positions and should not be using IMA for any of its trading desks. It is also important to note that while this simplified approach may reduce the implementation complexity, smaller banks may also see an increase in resulting capital charge. Banks that meet these eligibility requirements should bear in mind that supervisory authorities could still mandate them to apply the full SA if they are deemed to have relatively complex or sizeable risks in particular risk classes, even if they meet the indicative eligibility criteria mentioned above.

INDUSTRY IMPACT & GO-LIVE READINESS

RISK MANAGEMENT IMPACT

While intended to provide a more sophisticated and risk-sensitive approach which is better aligned with existing risk management practices and Front Office sales & trading activities, the revised requirements introduce unprecedented levels of complexity and implementation challenges. Updated calculations across both SA and IMA will require sophisticated scenario management, risk input aggregation and efficient computational engines. Banks will also need to ensure availability of efficient and reliable data storage capabilities to store substantial amounts of trade and instrument data, while maintaining a high level of data quality and accuracy. This will need to be accompanied by significant changes and rigorous testing of the entire front-to-back infrastructure. For banks that opt for IMA, this will be especially important to preventing a potentially retrograde switch between IMA and SA in the future.

In addition to the above, banks will need to clearly outline their trading desk structure and establish desk level policy, define and document a clear business strategy and define associated trading limits for each desk. This will need to be accompanied by regular management information reports and risk management reporting, along with a clear reporting line to the bank's senior management. Therefore, the revised rules are likely to require a significant overhaul of banks' existing risk management and governance frameworks, including substantial changes to existing policies and procedures, underlying technology infrastructure and regulatory reporting platforms. In fact, according to a 2019 survey by the ECB¹, the challenging requirements for revised IMA have already resulted in some banks that are currently using internal models to instead opt for the new standardized approach or at least reduce the number of trading desks under the revised IMA going forward.

COMMERCIAL CONSIDERATIONS

The FRTB regulatory requirements, by their very nature, are leading to higher costs for banks in terms of both initial implementation and ongoing compliance. This is further exacerbated by the macro impact of revised calculations across banks' product offering and overall market liquidity.

To begin with, banks will be faced with increased technology and operating costs resulting from greater demand for accurate, high quality data and the need for more efficient computation capability. This is in addition to the investment required for designing and deploying strategic market risk architectures via, in many cases, multi-year programs.

From a commercial standpoint, the updated calculations resulting from the new methodologies are likely to result in significantly higher capital charges, forcing banks to rethink their business model and trading strategy, especially offerings around capital intensive products. For example, less liquid instruments such as emerging market debt products are likely to see a material impact as low trading volumes in these products make determination of "real" prices more challenging.

1. https://www.bankingsupervision.europa.eu/press/publications/newsletter/2020/html/ssm.nl200212_2.en.html

In the absence of required data, these are likely to fall under the “non-modellable risk factor (NMRF)” category, thereby facing more punitive capital add-ons. In fact, a 2018 ICMA² briefing note suggests that the NMRF ES charge is likely to account for 30% to 50% of banks’ total IMA risk capital. While the regulatory calculations have since been revised to somewhat reduce the conservatism and operational burden of this element of the framework, it is still expected to be a substantial contributor to the banks’ overall capital charge. The resultant high costs associated with capitalizing certain emerging market businesses has the potential to further dissuade banks (including large global banks) from operating in these jurisdictions, which may serve to exacerbate the liquidity impact even more.

For banks in the APAC region that already find themselves dealing with varying levels of transparency and difficulties in determining underlying risks in fund products, the revised rules introduce additional complexities. A particularly notable challenge is the modelling of structured notes and other complex derivatives, especially as these are quite commonly used throughout the region. Banks need to ensure that they are able to correctly represent and capture risks in these products to drive accurate capital charge calculation under FRTB.

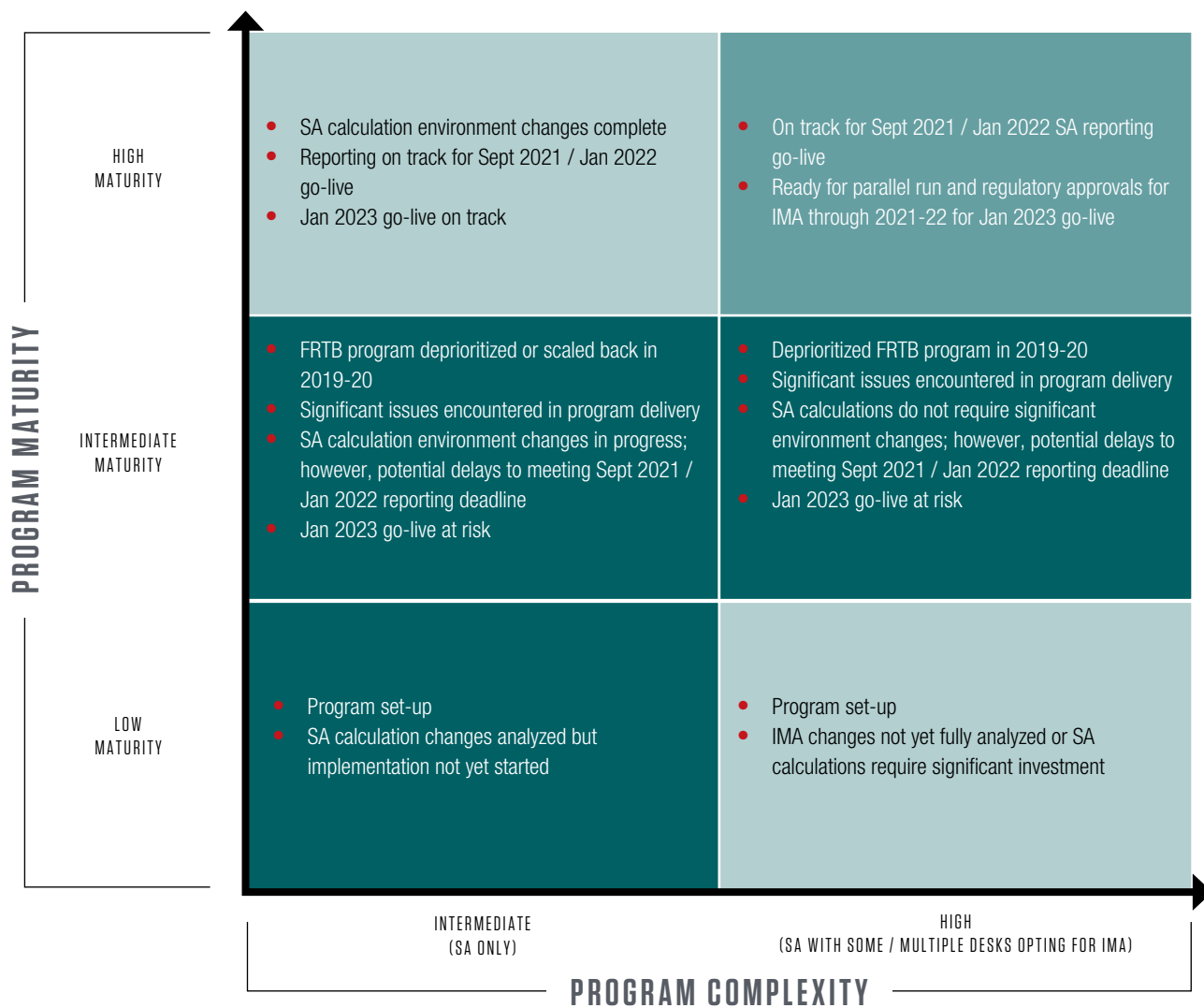
Ultimately, whether this challenging new landscape results in new pricing strategies or shutting down of some trading desks altogether remains to be seen. What is clear, however, is that the potential impact to pricing and liquidity means that the second order impact of FRTB will also be felt by banks’ buy-side clients. For example, a buy-side trader could potentially see banks retrench from operating in and providing liquidity for certain businesses where the increased cost of capital under revised FRTB requirements far outweighs the returns. Unsurprisingly, buy-side clients are most likely to be hit by this impact in products on the less liquid end of the spectrum as infrequent trading in these instruments will make it harder for banks to determine ‘real’ prices, reducing the availability of modellable risk factors and potentially resulting in higher NMRF related capital charges for banks.

INDUSTRY READINESS

The overall level of FRTB readiness varies significantly across the industry. Larger banks that are already using IMA are further along their FRTB change journey than some of the small / medium sized banks that are using the current SA. However, the former are also facing a substantial book of work ahead of go-live deadlines. This includes finalized agreement of the optimum trading desk structure for capital charge calculations, implementation of the internal calculation model (with associated data, P&L attribution and backtesting requirements), establishment of relevant governance, controls framework and policy documentation as well as supervisory approval processes.

On the other hand, feedback from small / medium sized banks currently using SA and continuing to use the revised SA indicates that they may also face some issues meeting the regulatory deadlines. In the EU, for example, approximately 25% of respondents to a December 2019 ECB³ survey reported either having made negligible progress on implementation of revised rules, or already admit facing delays in meeting the 2021 reporting requirement. It may be reasonable to expect that this would not have changed significantly during 2020 given an increased focus on business continuity and unprecedented levels of market volatility during the global pandemic. Coupled with a lack of finalized rules across various jurisdictions, this has left market participants facing significant uncertainty. However, regulatory bodies continue to stress that inability to meet go-live deadlines is unacceptable from a supervisory perspective.

2. https://www.icmagroup.org/assets/documents/Regulatory/Secondary-markets/ICMA_FRTB_briefing-note_jan2018-260118.pdf
3. https://www.bankingsupervision.europa.eu/press/publications/newsletter/2020/html/ssm.nl200812_4.en.html



EXPECT VERY FEW BANKS TO BE IN THIS CATEGORY	EXPECT SOME BANKS TO FALL IN THIS CATEGORY	EXPECT LARGE MAJORITY OF BANKS TO FALL IN THIS CATEGORY
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KEY CHALLENGES TO AVOID OPERATIONAL QUICKSAND

STRESSED EXPECTED SHORTFALL

Stressed Expected Shortfall (ES) is the primary determining factor in driving the increase in process complexity and computational time required under FRTB for IMA. Calculation of ES itself is computationally trivial, provided an existing VaR calculation model is in place. If an existing VaR model is not available, then substantial investment in IT and data storage infrastructure will be required to deliver the possibility of using IMA. VaR/ES require the revaluation of the entire portfolio for every single day within a tight window (often a 2-year historical simulation, so 500+ revaluations). Stressed ES adds a further level of complexity to this scenario.

The key challenges involved in determining Stressed ES are both:

- a. Sourcing and maintaining market data for stressed historical periods
- b. Calculation volume for Stressed ES

While the regulation assumes that full historical market data based on modern models / products is unlikely to be fully available, it does require a minimum 75% to be explainable. Market data master systems typically support front-to-back processes, but these systems will need to be expanded for additional market data acquisition and reference data sets.

Increased computational requirements for Stressed ES and Liquidity Horizon adjusted ES are at least a factor of complexity greater than existing approaches and required data storage needs are likely to be a further factor driving complexity. This would in all likelihood put a strain on any current in-house hardware, whether virtual or not, and the computational complexity becomes even more sensitive to the number of positions requiring valuation. The benefits of elastic compute and storage (that is, the ability to expand or contract on demand) on public, private or hybrid Cloud become very apparent to support the requirements of FRTB vs more traditional on-premise solutions. There is likely to be a strong case to support a migration to Cloud based infrastructure in the context of the FRTB requirements for a typical bank to control ongoing costs to deliver the required capacity despite the likely high implementation price tag and implementation complexity.

DESK LEVEL SIGN-OFFS

The granular and extensive desk level model audit and sign-off requirements are leading to a drive to automate these processes. Prior to FRTB model sign-off, regulatory reporting and analysis could have reasonably been done with some manual steps. The increased granularity, frequency and audit requirements will however, make any accurate and reliable manual process prohibitively expensive to deliver and will remain susceptible to human error.

Current processes will likely revolve around downloading data sets, manipulating results in Excel for reporting and distribution via email. All these steps are typically rife with the potential for error, result in often massive amounts of data duplication and further 'stress' a distribution mechanism that is not necessarily designed for such a purpose. Evolution of processes and activity away from the 'Inbox' and MS-Office suite, to modern reporting, analytics and data science tools will help diminish risk, increase productivity and decrease data duplication.

More and more low and no-code platforms will allow and require risk managers to develop additional technical skills and create tools for process automation to continue to help perform their job activities (but these should not require prohibitive quantities of training or overly-restrictive change management processes).

CAPITAL CHARGE EXPLAIN

VaR calculations have been typically non-straightforward to explain and it was harder to determine drivers of the outcomes. ES is a further level obscured (let alone Stressed or Liquidity-adjusted ES). However, the volume of data generated, the desk level focus, elastic storage, and fast aggregation and searching technologies do present new opportunities. Tree maps and heat maps can be used to illuminate key driving factors within an ES calculation and deals could be pre-checked for ES impact (similar say to existing credit risk checks).

The proper analysis and explanation of ES data is dependent on a single 'golden-source' source of high quality data. The data environment should be resilient to multiple queries and should be elastically expanded for 'what if' scenarios and sandboxing.

Previous choices between flexible, slice-and-dice analysis tools (e.g., Tableau, Qlik, other in-memory systems) and more structured reporting tools (e.g., Oracle BI, Cognos) have ended up driving diversion and replication of data sets, which inevitably lead to the requirement for reconciliation. A vastly greater understanding and control of Market Risk data will be achieved by:

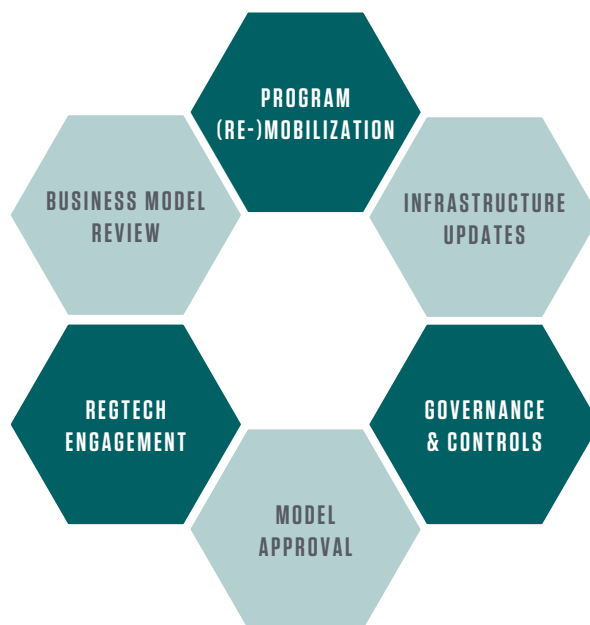
- The ability to apply the right tool to the right job for analysis, reporting, dashboarding and data science
- The same single, authoritative data set without a heavy burden of ETL and maintenance



PREPARING FOR THE ROAD AHEAD...

As the industry starts to emerge on the other side of the COVID-19 pandemic, supervisory focus will inevitably be redirected towards managing and ensuring regulatory compliance amongst market participants. Go-live dates are looming, and there are a number of cases of delayed implementations which mean that change agendas in 2021 are extremely heavy and intense for FRTB compliance. Banks are also likely to face difficult prioritization challenges, in regards to funding and budgets, amongst competing initiatives.

To ensure compliance with upcoming FRTB deadlines, banks will need to ensure significant progress across a number of different aspects over the next 6 to 24 months.



PROGRAM (RE-)MOBILIZATION

As banks enter the final phase of their FRTB implementation journey, they need to ensure that they have secured sufficient budget and suitably skilled resources for their change programs, while also factoring in the likelihood of a considerable post-implementation book of work (for example, in cases where banks initially go with SA with a plan to opt for IMA in future). In cases where already stretched budgets and resources were instead directed towards ensuring business continuity during the global pandemic, or are competing against similarly complex programs such as IBOR transition as a result of changed go-live dates, banks need to quickly remobilize their existing programs to ensure go-live readiness at speed.

INFRASTRUCTURE UPDATES

From an operational perspective, FRTB compliance across both SA and IMA will require end-to-end infrastructure changes including changes to existing trading platforms, risk computation engines, data management systems, reporting infrastructure and finance systems. Continued engagement and close coordination with technology partners (both internal and third-party) will be required to ensure any system upgrades and / or migration to Cloud platforms is fully implemented and tested in a timely manner. Compliance with desk level P&L attribution and backtesting requirements is an essential component of the internal model approvals process. Banks will also need to work closely with their market data providers as availability and storage of accurate and complete data in a timely manner is a critical requirement to avoid the NMRF cliff edge (and higher capital charges).

GOVERNANCE & CONTROLS

All infrastructure changes will need to be accompanied by the establishment of a strong and reliable framework of governance and controls to ensure compliance with both the letter and spirit of the regulation. Relevant policies and procedures will need to be updated and maintained at the trading desk level, and accurate MI and risk management reporting provided on an ongoing basis.

MODEL APPROVAL

Banks opting for IMA will also need to assess their readiness for model validation and approvals processes, as supervisory authorities are likely to be inundated with approval requests in the lead up to go-live. Strength of computational infrastructure and accompanying governance framework will be key to preventing automatic fallback from IMA to SA.

REGTECH ENGAGEMENT

In cases where banks opt to go for third-party regulatory technology (“RegTech”) solutions, they will need to appropriately mitigate the risk of a “black box” implementation. Supervisory authorities will expect banks to be able to demonstrate that the solution is in line with the regulatory requirements and that responsible personnel fully understand the computations and processes used in these third-party tools. Given the overall industry readiness in Q1 2021, this may be a route small / medium sized banks using revised SA choose to consider, as the cost of building an end-to-end in-house solution in a timely manner may far outweigh the benefits. However, fully adopting and successfully embedding any third-party solution is likely to be a significant undertaking and, given the upcoming go-live deadlines, time is running out for banks to make a decision on ‘buy vs build’.

BUSINESS MODEL REVIEW

Substantial costs of compliance and potentially higher capital requirements in a post-FRTB world will force banks to re-assess their overall business model. To ensure optimum capital charge calculation, banks should carefully consider how they define their trading desk structure and choose between revised Standardized or Internal Model Approach for each desk (providing satisfactory justification for any desks opting for IMA). This will also include establishing updated desk level business and hedging strategies and well-defined trading limits, as well as revised budgeting, staffing and MI reporting. To remain commercially competitive, some banks may also introduce new trading strategies or choose to exit certain capital-intensive businesses altogether.

CONCLUSION

The complexity and granularity of FRTB requirements and corresponding implementation approaches will be a dividing line in the performance of banks with regards to market risk. A poor implementation has the potential to land banks in the quicksand of compounding market and operational risk and increasing associated costs. However, an adaptable, elastic implementation will not just have the potential to make running costs more competitive, but also help allow the bank to differentiate for competitive advantage. Ultimately, a clear organizational alignment and a strong culture of strategic collaboration will be critical to achieving success.

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