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Message from the CEO

The Fundamental Review of the Trading Book (FRTB) is the next in a long line of regulations that are transforming capital markets. Its scope and complexity will require firms to rethink processes, business strategy and organisational structure. It will require a front-to-back consistent and transparent infrastructure for data, risk analysis, monitoring and reporting.

In our last Newsletter, I referenced McKinsey's annual report 'Wall Street banks need fundamental business model shift' on how banks will continue to suffer from weak profits, high costs and strategic uncertainty. This is a theme that will be important for the next several years while the markets continue to transform. In this environment, technology needs to deliver flexibility, transparency and value. The good news is that the latest technology innovations are rising to this challenge. Modern solutions like Quantifi are capable of delivering functionality that was impossible only a few years ago.

FRTB has been a recent focus at Quantifi. This continues a long tradition of innovation driven by close partnerships with clients. Quantifi's work on FRTB has been recognised by our position as 'Category Leader' in the XCelent awards for our level of coverage and functionality for FRTB. Celent, a research and consulting firm, recently published a report 'FRTB and the Upcoming Renaissance in market risk Management, Part 3' in which it evaluated technology solutions that address the ecosystem of FRTB requirements using Celent's ABCD framework.

This issue of InSight includes a couple of interesting articles on the topic of FRTB. One is a summary of a Quantifi whitepaper co-written with Kauri Solutions, a specialist financial consultancy, on the impact of the FRTB and FRTB-CVA framework on bank balance sheets. The second article presents findings from our recent survey on how firms are preparing for FRTB.

In 2016 we completed some of our largest implementations to date and added sell side, buy side, and insurance clients in EMEA, North America and Asia. This year looks to be a busy and ambitious one for Quantifi. We continue to partner closely with clients to help them navigate complex and volatile markets. This is driving an ambitious program of new functionality and improvements to our solutions. Reflecting our client focus, we are also continuing to improve how we support and connect with clients across the globe.

A handwritten signature in black ink, appearing to read 'Rohan Douglas'.

Rohan Douglas, CEO, Quantifi

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FRTB - Strengthening Market Risk Practices?

Exploring the Impact of the Basic CVA Framework vs the FRTB-CVA Framework

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Quantifi Recognised as Category Leader in the XCelent FRTB Solutions Awards 2017

Quantifi has been positioned as 'Category Leader' in the XCelent Awards for the Fundamental Review of the Trading Book (FRTB) Solutions. This category distinguishes pricing and risk analytics providers with the core components to support a bank's FRTB programme in terms of more complex derivatives analytics or front-office-centric capital optimisation capabilities. "Next generation technology infrastructures enable front office, risk & finance to achieve capital-efficient options & drive operational gains in the market risk data production chain." **Cubillas Ding, Celent**

Piraeus Bank Seamlessly Modernises Core Systems with Quantifi's Next-Generation Risk, Analytics and Reporting

"Quantifi was best suited to help execute on our strategy to cover a critical part of regulatory requirements with significant impact on our capital requirements. It was important to select a solution with mature valuation, analytics and reporting functionality that could seamlessly integrate with our existing systems," **Jannis Delis, GM - Operations Technology and Organisation**

FRTB Whitepaper Explores the Impact of Basic CVA Framework vs FRTB-CVA Framework

"We evaluated a number of commodity risk specialist technology providers and decided on Quantifi, given their expertise and capabilities in this space. We've been pleased with Quantifi's ability to exceed our expectations in developing a world-class credit and counterparty risk management tool customised to our specific needs." **Rick Bernstein, Senior Director, Global Credit Risk & Insurance, Bunge Limited.**

7Chord Seamlessly Integrates Quantifi's Advanced Model Library

We chose Quantifi because of its extensive coverage of credit and fixed income instruments, which we can leverage to support future trading strategies. Equally important was Quantifi's commitment to implementing on time and budget." **Kristina Fan, Co-Founder, 7Chord**

FRTB: STRENGTHENING MARKET RISK PRACTICES?

A Tale of Two FRTB's

In January 2016, the Basel Committee for Banking Supervision (BCBS) published the final rule of the Fundamental Review of Trading Book (FRTB), which represented the revised standards for minimum capital requirements for market risk.

In July 2015, the Bank for International Settlements (BIS) proposed the FRTB-CVA framework. Together with the Default CCR Capital, introduced as a part of Basel II in June 2006, CVA Risk Capital reflects counterparty credit risk capital charges and has become an important part of analysing trade profitability.

Market Risk FRTB

Final major piece in Basel 3 puzzle

FRTB is intended to address the undercapitalisation of trading book exposures witnessed during the financial crisis. While the basic goals and ideas of FRTB are simple, it differs materially from the existing 'Market Risk' regulations. It is, therefore, likely that the new rules will substantially change both the operating and business models of a large number of industry players.

FRTB overview

The final release of FRTB introduces various changes to Basel 2.5 Market Risk capital rules, both qualitative and quantitative. For example, the definition of banking and trading books is more prescriptive, with tighter restrictions on trading/banking book reclassifications, designed to reduce regulatory arbitrage.¹ The rules governing the separation of trading and banking books are now more robust. Internal risk transfers are also restricted as internal trades are only recognised if they are hedged with an external party (with the exception of interest rates risk). FRTB also includes more stringent and granular trading desk level Internal Model Approach (IMA) approvals.

Standardised Approach (SA)

Every bank, regardless of its IMA accreditation status, must also use SA to calculate capital. SA is not only applicable to banks with smaller and less sophisticated trading operations, it is now a viable fall-back method for IMA, allowing a more granular IMA accreditation than previous regulation.

Internal Model Approach (IMA)

With approval from the banks supervisory authority, institutions can use the IMA to meet market risk capital requirements. However, the IMA approach cannot be applied to all products, such as securitisation and correlation-trading portfolios, where market risk capital must be calculated using only SA charges.



IMA consists of three different components:

1

Expected Shortfall Component

Whilst this is a highly visible change, we do not believe it to be the most important. What we consider more significant is that the resulting capital charge is now calculated across a potentially very high number of scenarios, as opposed to the current regulation, which only requires VaR and SVaR scenarios.

2

Default Charge & Non-Modellable Risk

This is an incremental charge intended to capture losses that stem from an obligor defaulting - similar to a Jump to Default charge. In this instance, a VaR model with 99.9% confidence level is required.

Capital charge for non-modellable risk factors (NMRF) is another IMA component, which by some banks is considered a key challenge area within the FRTB. NMRF are factors that affect pricing, but cannot be included in the ES calculation.

3

IMA Accreditation

One of the new features in FRTB is the more granular approach to IMA approval. Historically, approval has been at the institution level, whereas now individual trading desks are subject to approval. As part of the switchover process, institutions are required to submit details of the desks they intend to request IMA approval for. Any desks not submitted cannot migrate to IMA for a period of twelve months.

Challenges

While BCBS aimed to have final regulations capital neutral, the latest Quantitative Impact Study [1] indicated a median increase in capital of 18% and the weighted average of 75%. Expected Shortfall of IMA generally decreased compared to VaR measure, whilst both Default Risk Charge and Non-Modellable Risk Factors significantly contributed to the increase. The standardised charge increased across the board and was two to three times more than the Internal Model charge.

Ambiguities remain

Despite the lengthy consultation process for the revised market risk framework, there are still areas of ambiguity. For example, with Residual Risk Add On, one would think that there could scarcely be something less controversial than multiplying a notional by a constant.

A concern for market participants is that regional regulators may adopt different approaches to resolving ambiguities, which would consequently create a maze of complex rules for institutions operating in multiple regulations.

FRTB-CVA Framework

The FRTB-CVA framework was proposed as a replacement for the current CVA Risk Capital calculations. To better understand its context, it is worthwhile reviewing the history of both Default and CVA capital charges.

Basel II and Default CCR (Counterparty Credit Risk) Capital Charge

Basel II requires banks to set aside capital to cover losses arising from counterparty defaults. These cost provisions, defined as RWA's (Risk Weighted Assets), rely on a notion of loan equivalent Exposure at Default (EAD). The most advanced methodology for calculating EAD is the Internal Model Method (IMM) approach as it authorises banks to use their own internal models.

Basel III and CVA (Credit Valuation Adjustment) Risk Capital Charge

During the financial crisis of 2007-2008 many losses incurred by banks were caused by CVA moves. During the crisis, volatility of underlying market factors drastically increased as did credit spreads of counterparties. Both of these effects led to a significant increase in CVA, which is accounted for as a loss to the bank.

¹ These rules were widely arbitrated during the 2008 crisis, with positions for which no marks were available moved to banking books.

As a response, Basel III (BIS, December 2010, finalised June 2011) introduced a new capital charge aimed at mitigating CVA volatility. This charge can be calculated either using a Standardised or Advanced methodology.

CVA Capital Charge - Standardised Formula

This is a simplified calculation for the CVA capital charge based on EAD's and effective maturities M's. In the absence of credit CVA hedges, (which were the only hedges permitted) this formula is:

$$Std\ CVA\ K = 2.33 \sqrt{0.25 \left(\sum_i w_i M_i EAD_i \right)^2 + 0.75 \sum_i (w_i M_i EAD_i)^2}$$

where w_i is a risk weight for i-th counterparty based on mandated ratings table.

CVA Capital Charge - Advanced Formula

This formula, also known as CVA VaR, applies to banks with IMM approval for RWA and Specific Interest Rate Risk VaR model approval for bonds. For these banks, the CVA capital charge is calculated as a triple sum of 10-day 99% CVA VaR's for current and stressed period:

$$Adv\ CVA\ K = 3 \times (VaR_{current}(CVA) + VaR_{stressed}(CVA))$$

In these cases, VaR's are usually calculated historically, but also can be done using the Monte Carlo model. Stressed period should be chosen independently for exposure and for credit spread. For exposure, it should be based on three years of historical stress data across the whole portfolio. For credit spread, it should be based on one year of historical stress data, as part of the three years of historical stress for exposure.

Total CCR Capital Charge

To calculate total CCR capital charges, Basel III requires banks to sum up Basel II RWA capital charges and Basel III CVA risk capital charges. There were four possible variants for total CCR capital charge, depending on the level of bank approval. However, with the introduction of SA-CCR on January 1 2017, the number of variants has reduced to three.

The new CVA framework will further adjust these variants, however, as the new framework is work in progress and subject to significant change (i.e. the recent removal of IMA), it is too early to finalise total capital charge under new CVA framework.

New CVA Frameworks

The Consultative Document 'Review of the Credit Valuation Adjustment Risk Framework', published by BIS in July 2015, proposed replacing current Standardised and Advanced Approaches for calculating CVA capital charges with new methodologies. These new methodologies are more aligned with the Basel FRTB framework and accounting practices for evaluating CVA. Its aim is threefold:

- i. Capturing all CVA risks along with enhanced recognition of CVA hedges
- ii. Alignment with industry practices for accounting purposes
- iii. Alignment with proposed revisions to the market risk framework

New Basic Approach BA-CVA

This is a simplified formula resembling current Standardised CVA methodology. In the absence of credit hedges (and this approach does not allow market hedges), the formula is:

$$BA_CVA\ K = \frac{1.5}{\alpha} \sqrt{0.25 \left(\sum_i RW_i M_i EAD_i \right)^2 + 0.75 \sum_i (RW_i M_i EAD_i)^2}$$

New SA-CVA Approach

To use SA-CVA, the following requirements must be fulfilled:

- The calculation of CVA sensitivities for given risk factors must comply with general principles for the calculation of CVA
- A methodology for approximating the credit spreads of illiquid counterparties is applied
- A dedicated CVA risk management function (and control unit) exists

Qualifying banks need to follow general principles to calculate regulatory CVA in line with the FRTB-CVA framework.

Comparison of SA-CVA with SA-TB

Since IMA-CVA is eliminated from FRTB-CVA framework, the only comparison between the two FRTB frameworks is with the SA-CVA and SA-TB methodologies. BIS acknowledges that though SA-CVA is an adaptation of the sensitivity-based approach for market risk to the CVA book, there are several important variances between SA-CVA and SA-TB, i.e. since counterparty default risk is already included in the CCR capital charge, the SA-CVA does not account for default risk. Also, recognising the fact that calculating CVA sensitivities is computationally very expensive, regulators reduced granularity of supervisory market factors, in most cases, and excluded gamma risk from SA-CVA. To compensate for the elimination or reduction of sensitivities, risk aggregation for SA-CVA is more conservative than it is for SA-TB. Recognising CVA is almost linear to the counterparty credit spread and that this type of sensitivity is relatively straightforward to calculate, an extra asset class of counterparty credit spreads is created which retains the full granularity of deltas, but no vega.

Conclusions

FRTB is likely to have a substantial influence in the way firms are organised and their approach to measuring and reporting risk. There will also be an overall business and operational impact. Banks need to decide whether the costs associated with operational and IT change is justified.

Ambiguity remains around methodologies, assumptions, definition etc., which we expect to be resolved once regulation is enshrined in law - hopefully consistently across the multiple jurisdictions. Even with these ambiguities resolved, implementing FRTB is still likely to be challenging.

PnL tests are critical for any bank that wishes to use IMA, however, only a few sophisticated institutions have in place the necessary framework to successfully run PnL tests.

NMRF can pose capital and operational costs to the bank. At the same time, NMRF may encourage banks or third parties to make the markets more transparent (thus reducing the number of NMRFs). Conversely, a lack of transparency imposes high capital costs on counterparties, causing the market to shrink.

Similar issues are relevant to the CVA component of FRTB. Test carried out by Quantifi demonstrate the increase in CVA risk capital charge under the new



basic approach (BA-SVA) compared to the current Standardised approach. The impact of the new CVA risk regulatory framework on the calculation methods and the bank's current state infrastructure could be a turning point for many medium-sized institutions.

Banks seeking to adopt the SA-CVA method will be interested in fast and accurate CVA sensitivity calculations. Sophisticated technology providers, like Quantifi, are able to provide various approaches for increasing efficiency of CVA calculations like streaming, cash-flow optimisation and analysing dependency graphs.

Banks that have a culture of following a disciplined approach and who make sound choices in managing their technology will likely be at a distinct advantage and better positioned in the post FRTB world in terms of their operating costs, ability to manage risk and ability to understand profitability across their organisation.

References

- [1] Basel Committee on Banking Supervision. Fundamental review of the trading book - interim impact analysis. November 2015

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Request a copy of the full whitepaper:
www.quantifisolutions.com/whitepapers

CASE STUDY

Helaba Enhances Enterprise-Wide Derivatives Counterparty Risk Management

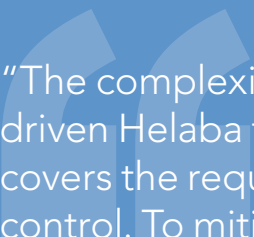


Helaba, one of the leading German banks, with a workforce of approximately 6,300 and a balance sheet total of around EUR 180 billion, offers financial services to companies, banks, institutional investors and the public sector, both within Germany and internationally.

Improving Counterparty Risk Management for Regulatory Compliance

Many banks have attempted to manage counterparty risk in a fragmented way, either by building tactical in-house solutions or investing in simple point solutions. As markets have evolved, banks are realising these systems are complex, expensive to maintain and lack the sophistication and flexibility to keep pace with regulatory and market reforms. These challenges have forced banks to update their counterparty risk management processes by investing in new technology.

Given current market practices around counterparty risk regulation, xVA management, funding and accounting, Helaba decided that it needed to enhance its counterparty risk infrastructure for their OTC derivatives business. To support this initiative, the bank wanted to pair their existing risk and core trading infrastructure with a modern, enterprise-wide XVA solution. The ability for senior management to get a comprehensive view of the banks' counterparty risk was another key priority.



“The complexity in all aspects of counterparty risk management has driven Helaba to implement an xVA risk solution, with Quantifi, that covers the requirements of both the trading department and risk control. To mitigate risk and enhance transparency, we need a more dynamic system that can provide consistent analytics and a single view of xVA risk across our entire portfolio of vanilla and exotic instruments.”

Matthias Rapp, Head of Trading, Helaba

A Single Integrated Solution

To satisfy counterparty risk and IFRS 13 requirements, as set out by their auditors and the European Central Bank (ECB), Helaba was required to calculate CVA/DVA/FVA based on a sophisticated Monte-Carlo based simulation across all relevant derivatives asset classes.

The bank required a solution that could provide the desired functionality including performing calculations for a large number of trades, both plain vanilla and exotic instruments, in a timely manner. With Quantifi, the risk function can capture all xVA measures, generate consistent analytics, including sensitivities, scenarios, and daily xVA Explain at trade-level. The front office benefits from being able to run incremental xVA and trade profitability analysis and price XVA for all components in basis points.

Technology Selection Process

After a rigorous selection process involving several other solution providers, Quantifi was shortlisted for the proof-of-concept (POC) phase. Following a successful POC, Quantifi was chosen as the preferred partner. Helaba was convinced by Quantifi's ability to implement new functionalities within a short timeframe, its coverage of all relevant asset classes and advanced modelling approach. Quantifi also offered a bi-directionally integrated solution between its Risk system and Excel, and a way of capturing trades and generating dynamic reports on the fly.

A Well-Defined Implementation

Quantifi and Helaba adopted a phased implementation approach, working in collaboration with a local partner, d-fine. The combination of Quantifi's modern technology, comprehensive data management tools, and commitment to support and adapt to Helaba's business resulted in both phases of the project being delivered on time and within budget. In addition, critical deadlines over the course of the implementation were successfully met. With Quantifi live and fully integrated into the bank's multiple processes and systems, Helaba has the advantage of a more powerful, sophisticated and performant XVA solution to support their business, mitigate risk and satisfy regulatory demands.

BENEFITS

- A single, consistent XVA modelling framework for front office, accounting and risk control purposes
- Integrated tools that generate consistent analytics, including sensitivities, scenario analysis and xVA explain
- Comprehensive incremental xVA based pre-deal profitability analysis
- Performance and scalability with analytical robustness
- High performance, modern architecture for automated system integration
- Quality and simplicity of data management helped accelerate the speed of implementation and quality of results

FRTB: ARE BANKS PREPARED?

Quantifi and Kauri Solutions, a specialist financial consultancy firm, recently co-hosted a webinar on 'FRTB: Strengthening Market Risk Practices?'. The 106 bank practitioners that took part in the webinar were surveyed on the challenges and complexities of implementing FRTB.

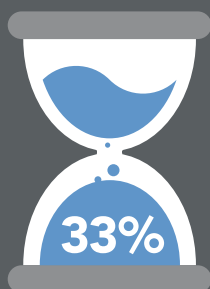
Is FRTB a key priority for your business for the next 12 months?



PRIORITY FOR
60% OF BANKS

Given the complexities of FRTB, it is important that banks start organising themselves to achieve compliance in a timely and efficient manner.

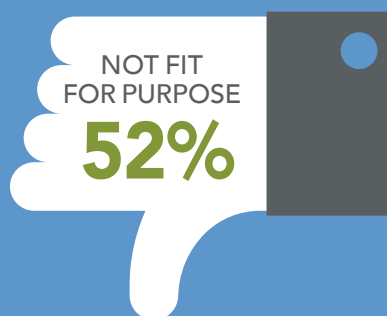
Is your firm ready to deal with the impact of FRTB?



ASSESSED
IMPACT &
MAKING
NECESSARY
PREPARATIONS

Banks are at varying levels of preparedness to deal with the impact of FRTB. To best respond to these new demands, banks need to make the right strategic and technology decisions, having assessed the impact on operations and processes across risk, front office, finance and IT. Banks that have a culture of following a disciplined approach and make good choices in managing their technology will likely be at a distinct advantage and better positioned in the post FRTB world.

How would you describe your existing risk infrastructure to support FRTB?



Top Ranked Actions

Replacement of
existing systems

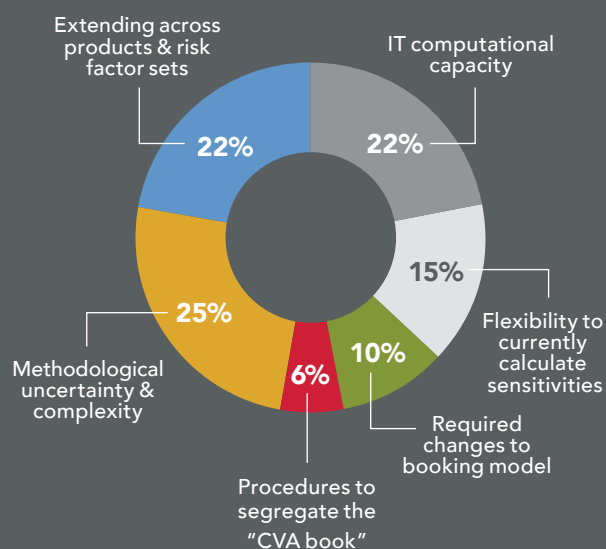
Fundamental
redesign of
existing systems



Integrating a complimentary
external solution to support
internal resources

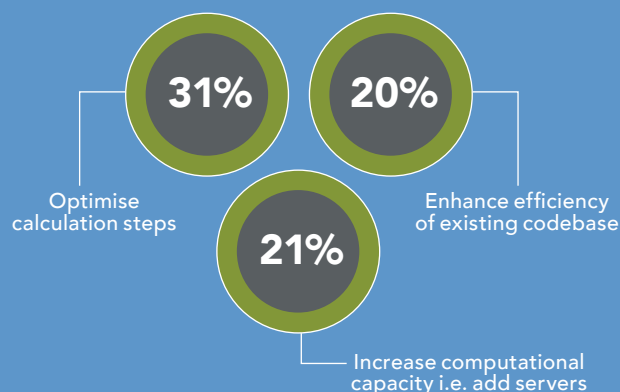
A more efficient IT configuration for shared front office, risk analytics and data, will require most banks to make additional investment in IT, data and implementation. Buy vs build investment decisions need to take into account initial investment costs, running costs, benefits and risks.

What are the key FRTB CVA implementation challenges faced by your institution?



These challenges emphasise the importance of having a unified, computationally efficient cross-asset class solution, which is flexible enough to support current and future regulations.

How are you planning to handle FRTB's drastically increased calculation volume and intensity?



To handle the volume and complexity of calculations required by FRTB, firms require a high-performance IT infrastructure across all asset classes. 51% share Quantifi's view that the best way of handling increased calculation volume is to enhance efficiency of existing codebase and to optimise all calculation steps, for baseline as well as for scenarios.

What approach are you planning to adopt in order to deliver the required front-to-back data architecture needed for market risk calculation, reporting and management?

The intensity of calculations leads to a significant increase in the volume of data needed to be processed. This confirms the importance of having a unified set of front-to-back aligned risk models, calibrations and data capabilities to achieve optimal trading, risk-aligned pricing, enhanced performance and cost-efficiency. For managing non-modelable risk factors (NMRF), expectations are solutions will be able to support data availability & integrity, modelling, stress/scenario analysis and RWA production activities related to NMRF and proxies. This includes aligned data repositories to classify, monitor, alert and rectify when modelable risk factors become unmodelable and better reporting dashboards e.g. positions and risk factors driving the largest NMRF capital charges.



Quantifi Recognised as **CATEGORY LEADER** in the XCelent FRTB Solutions Awards **2017**

Quantifi has been positioned as 'Category Leader' in the XCelent Awards for Fundamental Review of the Trading Book (FRTB) Solutions. Celent, a research and consulting firm, recently published a report 'FRTB and the Upcoming Renaissance in market risk Management, Part 3' in which it evaluated technology solutions that address the ecosystem of requirements using Celent's ABCD framework.

FRTB is intended to address the undercapitalisation of trading book exposures witnessed during the financial crisis. While the basic goals and ideas of FRTB are simple, it differs materially from the existing Market Risk regulations. It is, therefore, likely that the new rules will substantially change both the operating and business models of a large number of industry players. As banks prepare for the 2019 FRTB deadline,

specialist technology providers like Quantifi have a key role to play in helping banks modernise their risk infrastructure and business processes. Banks with a culture of following a disciplined approach in managing their technology will be at a distinct advantage and better positioned in the post FRTB world in terms of operating costs, ability to manage risk and understand profitability across their organisation.

Where appropriate,
adoption of next generation
technology infrastructures
and emerging innovations
enable front office,
risk and finance functions to
achieve capital-efficient
options and drive operational
gains in the market risk data
production chain.

Cubillas Ding, Research Director, Celent

Quantifi has been positioned in the Ecosystem Component Specialists (Risk) category based on its comprehensive level of coverage and functionality for FRTB. This category distinguishes pricing and risk analytics providers with the core components to support a bank's FRTB programme in terms of more complex derivatives analytics or front-office-centric capital optimisation capabilities.

"There are significant opportunities to use FRTB as a catalyst for changing market risk management practices and operations. Where appropriate, adoption of next generation technology infrastructures and emerging innovations enable front office, risk and finance functions to achieve capital-efficient options and drive operational gains in the market risk data production chain," says Cubillas Ding, Research Director at Celent's Securities and Investments Group.

Strengths & Differentiators^[1]

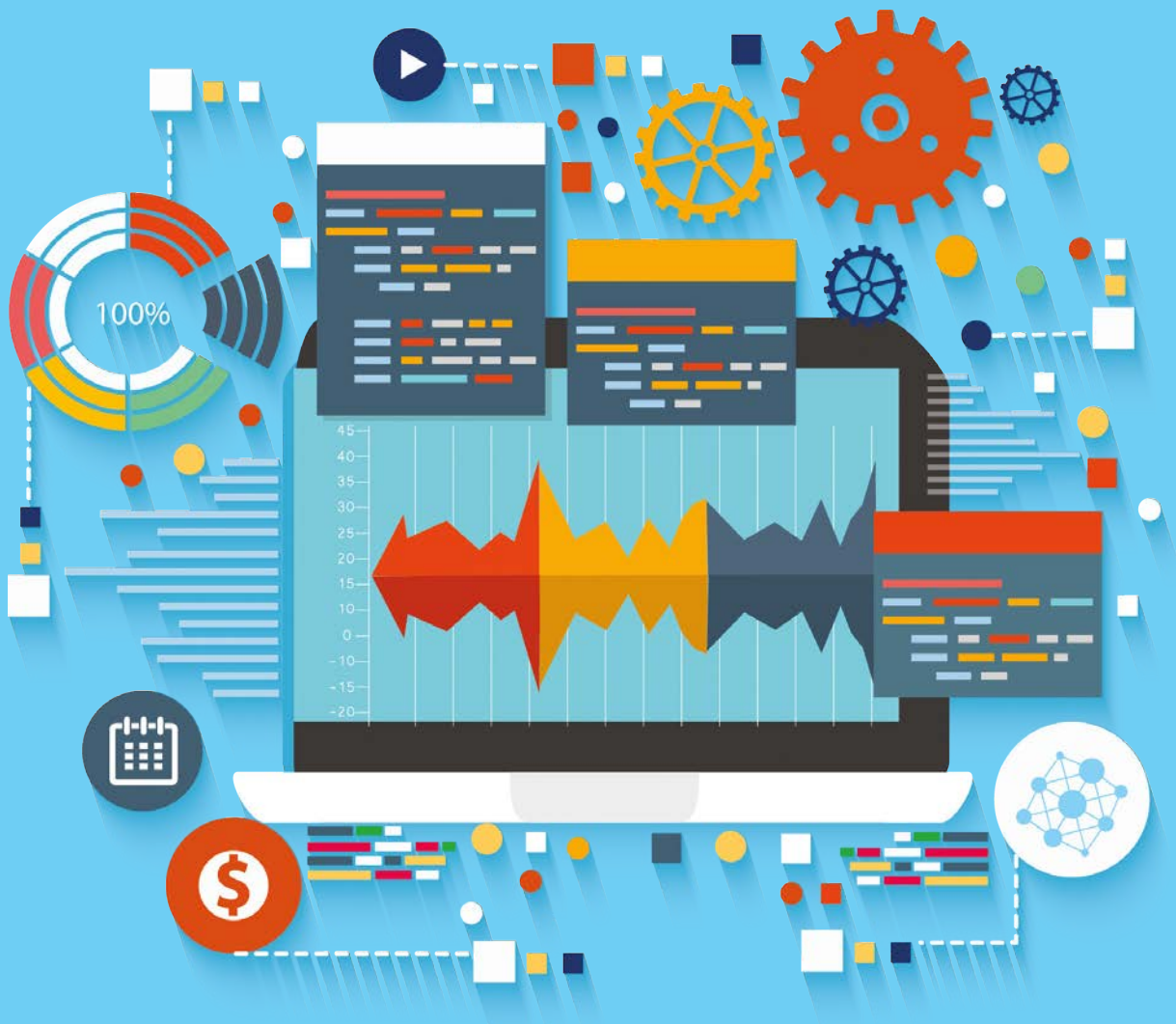
- One of the leaders in the provision of integrated trading, pricing and risk management, especially for derivatives and non-exchange-traded cash instruments
- Modern technology stack based on Microsoft and .Net environment
- Strong architectural design — Quantifi's investment in microservices architecture provides clients with greater ease of future adaptation, flexibility for 'plug & play' interfacing in heterogeneous environments, and bi-directional integration
- Full revaluations coverage and scalable performance
- Full support for P&L generation, decomposition, attribution and sign-off processes
- Extensive risk methodologies, risk measures and stress testing functionality supported
- Ongoing and sustained investment in performance optimization built on cost-effective, commodity hardware and infrastructure software
- Strong track record of delivering successful client implementations — with 100% success rates in delivering on-budget and on-time
- Integrated BI/reporting tool bundled as part of the solution

This report highlights Quantifi's support for FRTB, which includes full revaluations, across derivatives and fixed income instruments, strong coverage for P&L generation, decomposition, attribution, and sign-off processes; as well as extensive risk measures, risk methodologies and stress testing functionality that is consistent across front and middle office. The report also acknowledges Quantifi's ability to deliver to larger-scale firm-wide initiatives with its strong architectural design providing clients with greater ease of future adaptation, flexibility for 'plug & play' interfacing in heterogeneous environments and bi-directional integration. This modern architecture has contributed to a strong track record of successful client implementations – with 100% success rates in delivering on-budget and on-time.

"Quantifi is delighted to be recognised as category leader in the XCelent awards for its breadth of coverage and functionality for FRTB," comments Rohan Douglas, CEO, Quantifi." The changes required to implement FRTB are transformational and will require firms to re-examine their risk and pricing model architecture and enhance market data process. At Quantifi, we continue to evolve to help firms navigate new regulatory demands. We are currently engaged with several banks on how we can support their business strategy and help them meet the significant demands of FRTB implementation." continues Rohan.

^[1] Celent. (2017). FRTB and the Upcoming Renaissance in Market Risk Management, Part 3: Evaluating Ecosystem Solutions.





What is .NET Core?

Interview with Mark Traudt, CTO, Quantifi

In June of 2016, Microsoft announced the release of .NET Core, describing it as a “cross-platform, open source and modular .NET platform for creating modern web apps, microservices, libraries and console applications”. This represents a significant new platform strategy for Microsoft. Unlike the Microsoft .NET Framework, which is closed-source, .NET Core is licensed under a permissive open-source license and is available on GitHub. Also, unlike Microsoft .NET Framework, which runs only on Windows, .NET Core supports Windows, Linux, and MacOS and numerous third-parties are actively working to add support for mobile, “Internet of things” (IoT) and other devices.

To “foster open development and collaboration around the .NET ecosystem”, Microsoft founded an independent organisation, the .NET Foundation, with Google, Red Hat, and Samsung as members of its Technical Steering Group. As a further indication of its commitment to Linux and to open-source, Microsoft is now a Platinum member of the Linux Foundation.



What are the benefits of .NET Core to Quantifi Customers?

.NET Core offers several advantages to our customers:

1. There are the well-known benefits of developing on a widely adopted, open-source platform (the various .NET Core projects represent some of the most active projects on GitHub in terms of number of contributors, pull requests and forks). These benefits include: reduced cost, greater flexibility, increased transparency and greater innovation.
2. As it is cross-platform, .NET Core supports additional deployment options for customers. For example, customers can choose to deploy the Quantifi model library or our award-winning risk and reporting services on Linux or, if they prefer, develop on MacOS.
3. .NET Core is designed to make it easy to deploy in a container, and there are publicly available Docker images for both Linux and Windows. This is an important advantage, especially for deployment of Cloud-based applications.
4. .NET Core provides the ability to deploy the required runtime components with the application. This eliminates the need for customers to have the correct .NET framework version pre-installed.
5. Quantifi applications and services running on Linux will be able to leverage Big Data and Data Science technologies that target that operating system (OS). Many of these tools, such as Apache Spark, either only target Linux or Linux is the primary platform.
6. The ASP.NET Core framework, for building web applications, has been completely reengineered to provide up to 20x greater scalability than prior versions, providing an unparalleled combination of productivity and performance.

In addition, by offering first-class development and runtime environments for Linux and MacOS, we believe that .NET Core will encourage even greater adoption of C# (already one of the most popular programming languages) as well as F# and other .NET languages.

Does this mean I will need Linux in the future to run Quantifi software?

Not at all. Quantifi will continue to support Windows Server as we expect Windows will be the preferred platform for many of our customers. Those customers on Windows will, however, still be able to take advantage of the additional benefits of .NET Core i.e. scalability and flexibility in deployment.

Also, note that Linux will only be leveraged for Quantifi's model library, enterprise risk services, and grid worker processes. Quantifi desktop applications will continue to run only on Windows and require the Microsoft .NET Framework. .NET Core does not provide support for Windows Presentation Foundation (WPF).

What is your timeline for supporting .NET Core?

Our timeline depends in part on the timeline for the next (2.0) release of .NET Core. This is due to the fact that we use several API's that are not included in the current (1.1) version.

According to the .NET Core roadmap on GitHub, a preview version of .NET Core 2.0 will be released in Q2 of 2017, with the final version targeted for Q3. The current plan is for Quantifi to start work in Q2 using the preview version followed by full support in Q3, concurrent with or shortly after the final release of .NET Core 2.0.

What Linux distribution will you support?

Our current plan is to support Ubuntu and RHEL, however, other distributions could be supported if required.

My company uses Quantifi SDK's. Will I need to target .NET Core?

Probably, but you have some time. We will not be supporting .NET Core until Q3 and, until then, you should continue to target the appropriate .NET Framework version for your Quantifi release. Also, future versions of .NET Framework will be able to call libraries developed using .NET Core and the next release of .NET Core will, in certain cases, provide the ability to call libraries developed using .NET Framework.

How does this fit into the overall Quantifi roadmap?

We expect that .NET Core will be the predominant platform targeted by .NET developers for web apps, microservices and libraries in the future. It is, therefore, important for all customers that use Quantifi's model library and enterprise services that we fully support .NET Core. It is especially important for customers who plan to deploy Quantifi in the Cloud as this is an integral part of our Cloud strategy.

Quantifi Enhances Support for Asset Backed Securities

With Quantifi's single solution, investment management firms can take advantage of integrated portfolio analytics, risk assessment and position monitoring across their structured finance and other cross-asset portfolios. Support for ABS extends the Quantifi solution to cover:

- Consistent, integrated risk management and reporting for cross-asset portfolios
- Leading-edge scenario framework provides full flexibility and granularity of collateral assumptions based on specified criteria. Surpassing the flexibility offered by other risk technology providers
- Comprehensive impact analysis of varying credit and interest rate environments as well as assumptions on behaviour of collateral and equity tranches
- Accurate exposures and sensitivity analysis across an entire portfolio
- Customised approach to measuring and analysing hedge effectiveness over any time horizon
- Advanced measurement of VaR across an entire portfolio including structured finance positions
- Cross referencing of Intex collateral items against 3rd party indicative and performance data

"Growth shoots are returning to asset-backed and CLO markets, but fears of the past and regulatory cross winds ahead continue to buffet. Firms already face a raft of demands around detailed disclosures, liquidity, accounting and management of retained risks – addressing these require continued investment in platforms that can optimise the cost of managing structured/ABS portfolios and next-generation analytics to underpin granular, forward-looking risk assessments." comments Cubillas Ding, Research Director, Celent.

About Quantifi

Quantifi is a provider of risk, analytics and trading solutions. Our award-winning suite of integrated pre and post-trade solutions allows market participants to better value, trade and risk manage their exposures and responds more effectively to changing market conditions.

Quantifi is trusted by the world's most sophisticated financial institutions including five of the six largest global banks, two of the three largest asset managers, leading hedge funds, insurance companies, pension funds and other financial institutions across 40 countries.

Renowned for our client focus, depth of experience, and commitment to innovation, Quantifi is consistently first-to-market with intuitive, award-winning solutions.

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Quantifi Wins Technology Award for its Microservices Architecture

"We are delighted to receive the CIR Risk Management award, recognising our commitment to technology. Leveraging better technology can increase flexibility, improve performance, lower costs and reduce operational risk. Firms want to minimise the number of different technologies that are in play, aiming to lower costs and improve resiliency. They want to be able to upgrade functionality with minimal operational interruption. Quantifi's investment in microservices has reshaped how we serve our clients by addressing these modern business requirements of speed, agility and scalability." *Mark Traudt, CTO, Quantifi*



Whitepapers

- FRTB: Strengthening Market Risk Practices?
- Microservices: The New Building Blocks of Financial Technology
- Identifying Liquidity Risk for Financial Stability
- Cost of Trading and Clearing in the Wake of Margining
- A First View of the New CVA Risk Capital Charge
- IFRS 13: CVA, DVA, FVA and the Implications for Hedge Accounting
- Sell-Side Risk Analytics – RiskTech Quadrant®
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