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Key Trends Reshaping Capital Markets





Message from the CEO

As changes in technology accelerate, so will the impact on capital markets. AI and big data are some of the most disruptive emerging technologies. By harnessing the power of these new technologies, firms can create competitive advantages, gain process efficiencies and reduce costs. This issue's cover story highlights some of these trends.

Over the last year, we have seen a number of developments in credit markets, particularly the emergence of new products (e.g. ETFs on credit indices and the return of structured products). I discuss some of these recent developments in my article 'Trends in the Structured Credit Markets'. We also have Frank Iacono, CDO Origination, Structuring and Trading Unit of Jefferies provide a perspective. The growth of fixed income ETFs is one of the agenda items at our annual capital markets conferences in London and New York.

Reflecting on 2019, it has been a very successful year in terms of product development, revenue growth and client satisfaction for Quantifi. Earlier this year, we were recognised at the Risk.net Technology awards for our system support and implementation. In terms of growth, we have had a number of leading investment management firms adopt our technology. We have also seen expanded usage from our existing client base of banks, investment managers and corporates. As we prepare for 2020, we plan to continue investing in technology initiatives designed to anticipate and respond to new customer requirements.

At Quantifi, we believe our responsibilities go beyond our products and services, and we want to make a meaningful contribution to social issues. As well as donating 3% of profits to our charity partners, we encourage employees to leverage their skills to benefit their local community.

Thank you to all our partners and clients for your trust and confidence in Quantifi. We have a lot to look forward to next year.

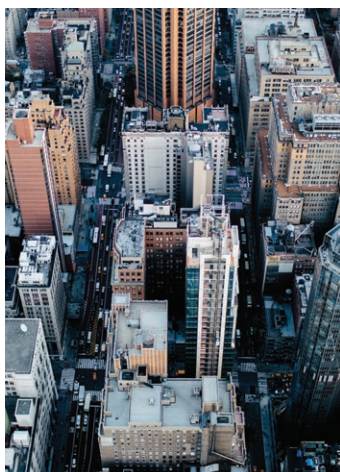
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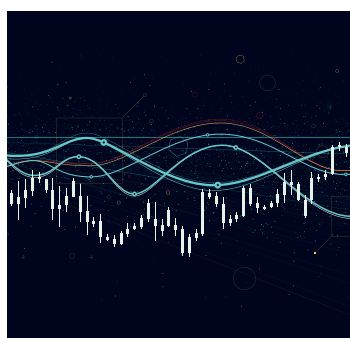
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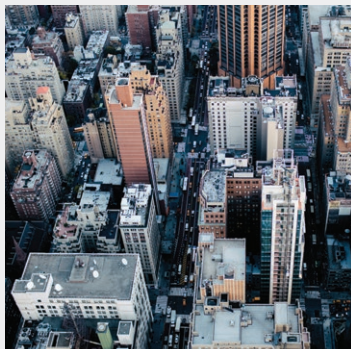
Rohan Douglas, CEO, discusses developments in the credit markets.



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Risk.net Technology Awards

Quantifi recognised for its systems support and implementation.



Quantifi Announces Agreement with Jefferies to Support their Structured Credit Business

Jefferies Group LLC selects Quantifi to support its growing structured credit business. To support this synthetic CDO business, Jefferies sought to acquire a state-of-the-art pricing and analytics solution with enhanced capabilities for synthetic structured products, instead of developing its own in-house system.



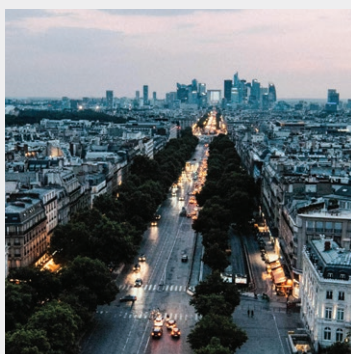
Tresidor Investment Management Selects Quantifi to Support New Fund Launch

"Quantifi's market-leading credit analytics and open architecture made it the best choice for our fund. Leveraging Quantifi's advanced modelling techniques helps us make faster, better-informed investment decisions and, with easy access to its model library using their rich set of APIs, we can customise and extend the solution as needed." Michael Phelps, CIO, Tresidor



Quantifi Expands Usage of Microsoft Azure Cloud for its Cross-Asset Platform

"Cloud technology is a catalyst for modern business value and we are delighted that Quantifi's clients are benefitting from the integration with Microsoft Azure. Using Azure gives Quantifi the agility and hyper-scale capabilities it needs to support even the largest and most complex of portfolios." Matthew Kerner, General Manager, Blockchain & Industries, Azure at Microsoft



LFIS Selects Quantifi for Multi-Asset Portfolio Pricing and Risk Management

"We were impressed by Quantifi's leading expertise in the structured credit sector and their ability to provide a complete end-to-end solution was the key factor in our decision. The advanced functionality and flexibility of Quantifi's offering has made it easier for us to engage in price discovery and be innovative with the product design of our portfolio." Michael Hattab, Senior Portfolio Manager, LFIS

QUANTIFI IN THE CLOUD

Quantifi recently announced that it has expanded its usage of Microsoft Azure Cloud. Technology is changing the way firms operate and deliver solutions to end-users. One of the most notable technology advances in financial markets is cloud computing.

Given the increasing demands from customers, greater regulatory requirements and cost efficiency pressures, more and more firms are embracing cloud strategies to address the modern business imperatives of performance, flexibility and agility. Another important factor is the ability to scale faster and more efficiently and to facilitate time-to-market in a fraction of the time previously possible.

"As firms look to conduct business faster and more efficiently, the popularity of cloud-based platforms has accelerated at a rapid pace. We have taken full advantage of the movement towards cloud by transforming our technology stack. With Microsoft Azure, we can offer cloud capabilities to firms that have traditionally used on-premises implementations. We have successfully migrated a number of clients to our cloud solution with no disruption to their existing processes," comments Rob Reese, Cloud Development Manager, Quantifi.

Azure is a key enabler for our microservices architecture. By utilising a cloud infrastructure as business processes change, individual or multiple services can be dynamically unplugged and replaced as needed. Quantifi is built using advanced technology and lambda architecture design patterns that leverage modern CPUs and cloud computing to deliver scalable, ultra-high performance. Leveraging Azure allows Quantifi to deliver an elastic platform that can be developed, configured and changed at a granular level.

"At Microsoft, we are committed to supporting FinTech companies, like Quantifi, to optimise their technology strategy. Cloud technology is a catalyst for modern business values and we are delighted that Quantifi's clients are benefitting from the integration with Microsoft Azure. Using Azure gives Quantifi the agility and hyper-scale capabilities it needs to support even the largest and most complex of portfolios," comments Matthew Kerner, General Manager, Blockchain & Industries, Azure at Microsoft.

"Emerging technologies like cloud, big data and AI are bringing the focus back to how firms can enhance their risk management capabilities. Cloud's coming of age has led to an acceleration in adoption as firms look for improved scalability, cost-effective and robust infrastructure. At Quantifi, we have a history of being ahead of the curve in terms of innovation and technology developments. Our decision to expand our usage of Microsoft Azure allows us to be even more agile, offer a faster time to market, and further reduce client's capital investment," comments Rohan Douglas, CEO, Quantifi.



Microsoft Azure



Q&A WITH FRANK IACONO

SYNTHETIC CDO ORIGATION, STRUCTURING & TRADING

What is your role at Jefferies?

I am assisting Jefferies in building out a synthetic Collateralised Debt Obligation (CDO) origination, structuring and trading unit. This is a new product line for Jefferies. Our initial focus will be on

transactions based on bespoke portfolios of corporate credit exposure, including static and managed Collateralised Synthetic Obligations (CSOs) and customised risk-transfer solutions for clients.

What do you consider to be the most significant developments in CSOs in 2019?

I would say the most significant developments of 2019 are the return of the five-year CSO and the impending return of the managed CSO.

Corporate credit spreads have generally trended tighter since the short-lived sell-off in December. At the same time, we're seeing a relatively high amount of volatility for a generally rising market. This combination has been challenging for synthetics. Tight Credit Default Swap (CDS) spreads mean lower yields on CSOs and, all else equal, higher volatility tends to discourage investors from structured products. The two- and three-year deals also continue to be challenged by the steep credit spread curve and wide CDS bid-offers at any point other than the five-year. In 2019, these factors have combined to constrain growth, but have also driven the return of five-year CSO deals. To many investors, five-year spreads look attractive relative to three-year spreads, and CDS liquidity is much better at the five-year point. The challenge has been finding first loss investors comfortable with taking a five-year view on a portfolio of static credits. This has led to talk of five-year CSOs

based on managed portfolios of CDS, and we are currently in discussion with several managers, each with expertise in a different subset of the globally traded CDS universe.

Where is this product going?

In general, at least for a while, I see the marketplace reviving structures that have worked well in the past, like the five-year CSO and the managed CSO. As another example, insurance companies were big buyers of rated bespoke tranches traded in funded note form. In the post-crisis world, revised rating models, margin regulations and other factors pose challenges to these structures. However, in a wider spread environment than we see today, these challenges can be overcome. We are also working with clients on customised risk-transfer solutions for portfolios of corporate bonds or loans, as some clients have indicated this might be a good time to use the synthetic structures to lighten up on some exposures they are unable to sell directly.

That all said, in order for the synthetic CDO product to fully re-emerge, the marketplace will need a broader and more consistent bid for single-name CDS protection. Default rates have remained low for a long time now, and this has been a factor (but not the only factor)



behind reduced CDS trading volumes and liquidity. It might take a sustained credit market downturn or uptick in corporate default rates for this to happen.

What is the background to Jefferies recently expanding into the synthetic CDO space?

Jefferies has been a meaningful force in Collateralised Loan Obligations (CLOs) for several years now. Similar to many of the investors in the space, we see the bespoke synthetic CDO product as a good complement to the CLO product. We're looking to take the structuring creativity, opportunistic risk taking and distribution capabilities that have enabled us to distinguish ourselves in the CLO space and transfer these to the synthetic CDO space to achieve similar results.

Jefferies

STREAMLINING TECHNOLOGY & OPERATIONS

Key Trends Reshaping Capital Markets



*This articles relates to a webinar hosted by Quantifi with guest speaker from Celent.

This article explores the key trends affecting asset managers and asset owners and examines their impact from a technology and operations standpoint.

Staying operationally lean and nimble

Margin pressures are forcing firms to improve costs and streamline their core technology and operations. This comes at a point when technology suppliers themselves are also expanding their functional footprint across different parts of the asset management value chain. These combined dynamics are opening up opportunities for investment firms to rationalise, consolidate and pivot their application landscape towards a more fit-for-purpose configuration. We are observing a few specific areas within the asset management ecosystem where convergence is taking place. The first one is the area of trade and order management (OMS and EMS). This is already well underway and we have seen some firms effectively consolidate six applications to just one or two.

In the coming years, we anticipate an increase in convergence, especially in areas where there are parallel asset-centric applications (e.g. portfolio management and construction) and also to better align across applications for derivatives and alternatives. Risk measurement and performance attribution are also areas where firms are evaluating their convergence potential. Both of these areas have data sets and analytical production activities that overlap significantly and, therefore, have the potential to converge. The key take away here is that, in the medium term, and in tandem with outsourcing and greater automation, we expect that investment managers can achieve cost reductions of up to 25% if they adopt an ecosystem approach to streamlining their technology and operations landscape.

We have observed a clear trend towards optimising solution architecture, particularly in the hedge fund space where firms are embracing cloud strategies to address performance, flexibility and agility. A significantly faster time-to-market is also a influencing factor as is the ability to scale faster

and more efficiently. Over the last couple of years we have seen both established and start-up funds looking for a lightweight end-to-end solution that can support front-office risk as well as operational requirements and can also scale as the firm and AUM grow.

Upgrading the Investment Engine

FinTech service providers are increasingly directing their efforts to use cases within an investment management context. Some of these use cases are potentially disruptive whereas others can be complementary to existing buy-side ecosystems.

Emerging digital technologies are rapidly advancing and we expect this to have important implications for the asset management value chain. At present, investment activities around fundamental research, security selection, portfolio modelling and trading are being challenged by digital adopters.

Across the value chain, we see pockets of innovation which, in itself, may not necessarily be ground-breaking, but are interesting signposts for some substantial changes to come. For example, in sales distribution and advice, we see that investment offerings are likely to become more targeted and reflective of an investor's financial growth and risk appetite. This would involve advanced data mining or machine learning techniques to understand the investor's financial objectives. In the case of research, both retail and institutional investors now have access to resources that can enable them to gauge and evaluate market sentiment. They also have access to more specific market intelligence based on alternative data sources including social media, geospatial data sets and, in some cases, the ability to crowdsource investment strategies. Finally, we are seeing firms researching and applying machine learning algorithms for more accurate classification, regression and clustering of data. These are being applied to specific investment activities such as security selection, portfolio construction and also risk budgeting.

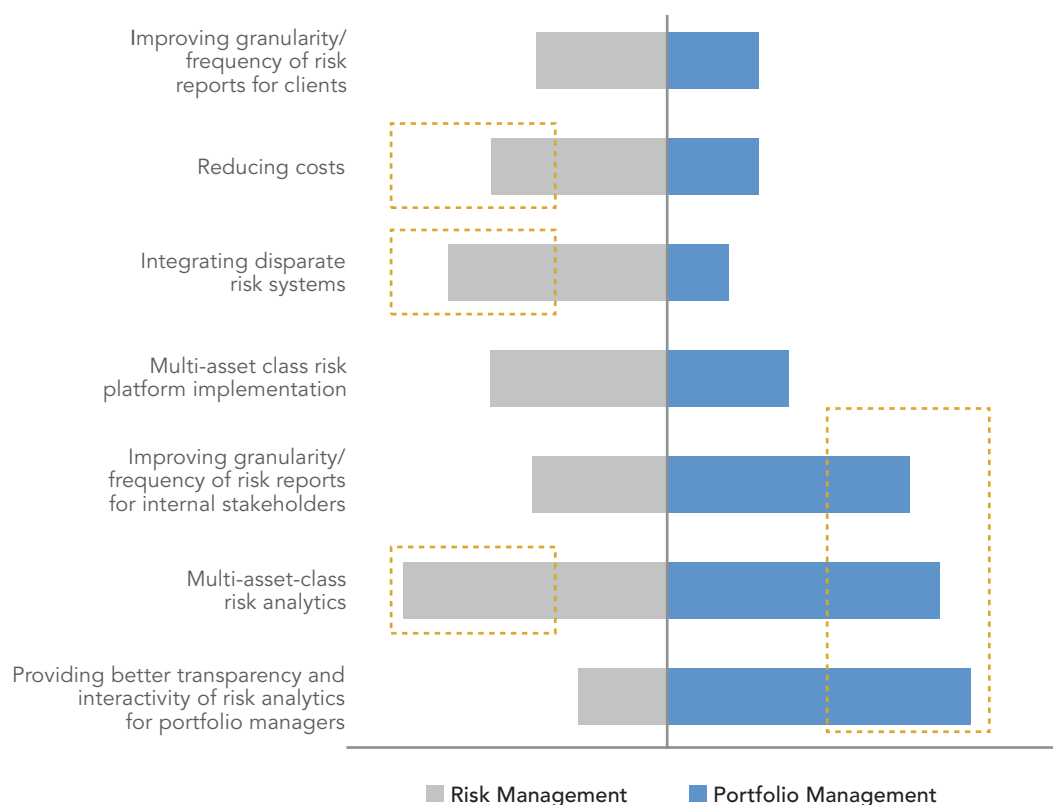
Whilst AI techniques are not necessarily new, the phenomenon occurring here is the growing availability and access to computational resources that are driving experimentation and innovation across different industries.

We are seeing forward-thinking firms re-evaluating their business processes to leverage emerging technologies. In our experience, these new technologies lend themselves specifically to particular problems in niche functional areas. For example, portfolio construction and optimisation using technologies like AI, machine learning and big data are being explored by a number of retail as well as institutional asset managers. It is also worth noting that the sheer access to resources and a higher level of computing power is changing the way things are done. More and more firms are demanding real-time and on-demand PnL and risk for OTC asset classes. In the past, we had only seen this demand for securities, but now there is even

a demand for OTC derivatives because there are resources available to crunch large volumes of data. There is also demand for more computationally intensive analysis (e.g. simulation-based multi-period stress) and rebalance cycles to better manage liquidity risk. We have had large asset managers asking for forward-looking stress testing, which is not just limited to stressing the portfolio, but also incorporating the rebalancing response across multiple cycles. This is something that is now possible because of the computational power that is available.

A recent survey conducted by Celent highlighted that some firms are still experiencing rudimentary pain points relating to conventional data and analytics enablement across different firms. Portfolio managers are facing barriers to accessing consistent portfolio and risk analytics that are interactive, granular, multi-dimensional and based on fresh data.

Figure 1: What are the top challenges to managing risk?



What are the top challenges to managing risk?

The emphasis here is on achieving a firm-wide view of exposures, risk and performance as well as reducing inefficiencies and costs associated with data aggregation across the firm on a larger scale.

On both fronts, some of the fundamental challenges faced by portfolio management and risk functions cannot be solved merely by adding more functionality. Firms need to adopt an ecosystem-based approach to reduce the application footprint and to centralise core investment data sets in order to realise the full potential associated with next-generation digital technologies and approaches. Firms will also need to have a good understanding of what a fit-for-purpose application and data ecosystem should look like for their organisation. This is not merely to achieve a leaner cost base, but also to set down modern technology foundations in order to embrace the new capabilities we referenced earlier.

Pursuing fit-for-purpose solution strategies: key take aways from Celent

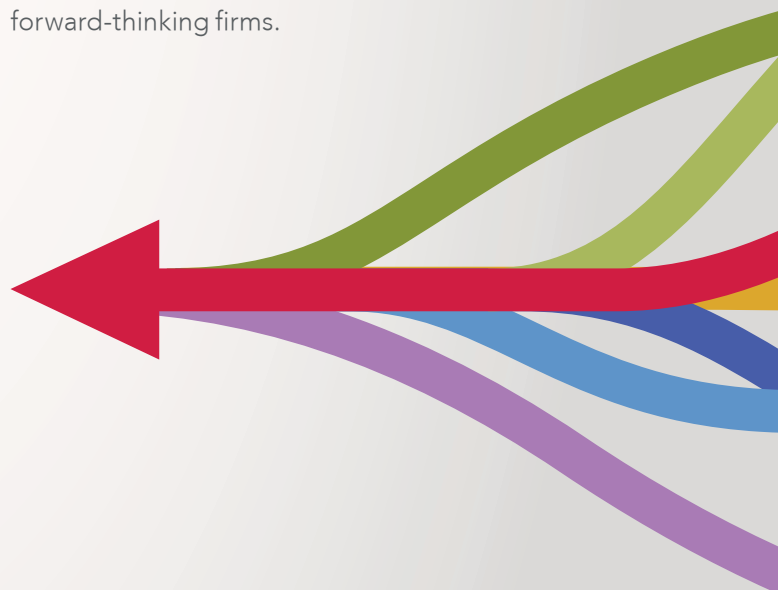
Firstly, when selecting solutions, Celent recommends that targeting 80% of functional coverage is often a good rule to follow. They would also advise firms to be cognizant of how quickly the solution can actually be adapted. Certain applications may have less extensive functional coverage, but in the long run, their systems architecture and data foundations (e.g. microservices or native cloud design) can play to their advantage in terms of adaptability and total cost of ownership.

The investment technology provider ecosystem we have seen over the last few years is also increasingly bifurcating into integrated platforms versus best-of-breed providers. How your firm selects, integrates or partners with the changing technology provider market will depend on how you envisage a fit-for-purpose operating model within your own firm.

In recent studies, Celent highlighted the main archetypes that they consider fit-for-purpose. These are usually nuanced by an investment firms' strategies, their asset composition and also the starting point of their legacy technology. Celent would often advise clients to take steps to evolve towards one of these blueprints as consistently and practically possible.

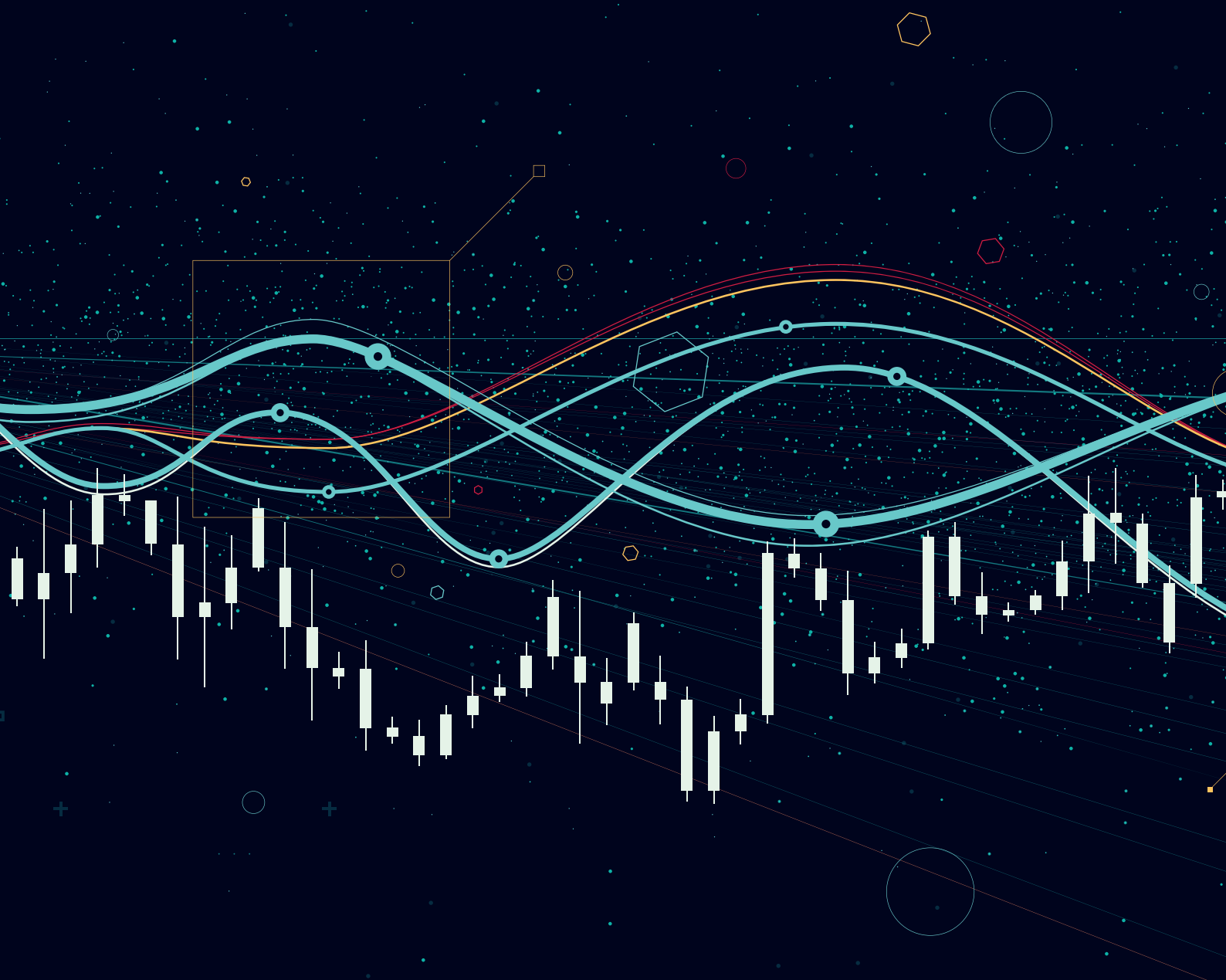
Thirdly, in deciding on next generation platforms, Celent typically advises clients not to let functional use cases and features halt the entire discussion. They advise firms to consider elements that would enhance the maintenance, adaptation and future-proofing of their investment before making a decision.

The final point is that, in a convoluted and converging vendor landscape, which is especially pertinent for portfolio and risk management systems, Celent asks firms to ensure that they understand a vendors' DNA and solutions heritage as well as the trajectory of where roadmaps and investments for specific products are headed. In most cases, firms can select a technology provider for current functional needs and, to some degree, future functionalities. However, a platform's architectural foundations and other intangible factors are likely to determine how quickly your firm will adapt, extend or expand into the future. This is becoming an important priority for more forward-thinking firms.



TRENDS IN THE STRUCTURED CREDIT MARKETS

Rohan Douglas, CEO, Quantifi, discusses recent developments in the credit markets and how Quantifi differentiates itself from its competitors in the structured credit space.



In recent years, the most significant developments in the credit markets have been the emergence of new products (e.g. ETFs on credit indices) and the return of some older products (e.g. tranches). During and after the credit crisis of 2008, tranche trading all but disappeared. It is now back with gusto. Bespoke tranche trading reached \$80 billion issuance in 2018, and continues to grow rapidly. There is also more confidence that this is a sustainable trend with the development of a stronger secondary market and traded maturities extending beyond two or three years. Although it is far cry from pre-crisis level, these are encouraging signs for the tranche market's revival.

Which tranches are more popular now: index or bespoke?

The volume of bespoke tranche issuance in 2018 is still significantly lower than index tranche trading, which reached \$215 billion in 2018. One reason is that with index tranches, banks can trade all pieces of the capital structure independently, whereas for bespokes they need to issue the whole capital structure. There are also several popular strategies that are only possible in a more liquid

index tranche market - such as equity vs. mezzanine or curve trades like short- vs. long-term tranches. Most liquid on-the-run index tranches have five-year maturity (now IG31 and HY31), but to play the curve shape, short-end IG/HY 25-27 are also popular.

The bespoke tranche market has had a great 2019 so far, but what is tempting new investors into the space?

Banks, the main sellers of bespoke tranches, do not want any significant market risk, so they need buyers for all sectors of the capital structure. There has been a steady increase in investor interest in this space. Each part of capital structure has its own risks: equity - mostly idiosyncratic or senior (systemic, mezzanine) - a mix of both. They also have their own individual attractions. Mezzanine provides the most efficient leverage, short-dated senior is good for funding, and long-dated is better for real investment. Investor interest might shift - super-senior has taken the place of equity. Both ends of the capital structure are now liquid with super-senior tranches having a 4-5 bps margin.

While the main buyers of bespoke tranches are still hedge funds, there is a big interest in CSO from cash investors who hedge credit risk in synthetic market, mostly with equity

tranches. For these investors, CSO as a product makes perfect sense, allowing buyers to express a view on different parts of the market and to go short. Diversity of names/tranches is also attractive, and compared with cash (CLO), CSOs react much faster and provide a better relative value instrument. There is also noticeable interest among insurers and pension funds, which mainly look for super-senior tranches.

What major developments do you anticipate from the market in the future?

It will be interesting to note whether we will see ratings for bespoke tranches anytime soon. Moody's and S&P's have updated their methodology, but currently, very few tranches are rated. If this happens, it could lead to an even bigger influx of institutional investors.

What differentiates Quantifi from its competitors in the structured credit space?

Quantifi is the established leader in the structured credit space with a single solution covering pre-trade analytics, trading and post-trade valuation, risk management, and reporting. We provide a turnkey solution that integrates easily with existing systems and allows market participants to rapidly take advantage of trading opportunities as they occur.



QUANTIFI RECOGNISED FOR
ITS SYSTEMS SUPPORT AND
IMPLEMENTATION AT THE
RISK.NET TECHNOLOGY AWARDS

Quantifi has won 'Best Vendor for Systems Support and Implementation' at the Risk.net Technology Awards. These awards recognise technology providers that have demonstrated innovative product development and exceptional customer support in the fields of ALM, credit and operational risk as well as wider enterprise risk management.

Quality support and implementation is proving increasingly important to firms when selecting financial software systems and educated market participants focus closely on these factors when selecting a new solutions partner. At Quantifi, premium support and implementation is not only about client retention, it has also proven to be a factor in winning new business too. Quantifi prides itself on the referral business it receives from satisfied clients as this reflects the advanced functionality, modern technology and outstanding support and implementations it offers.

"Due to our exceptional level of support and implementation experience, we have a successful track record of delivering all implementations to date, on time and on budget," comments Robert Goldstein, Director, Global Client Services, Quantifi.

"QUANTIFI IS DEDICATED TO ENSURING FIRMS GET THE MOST OUT OF OUR SOFTWARE AND OUR COMMITMENT TO WORK IN CLOSE PARTNERSHIP WITH OUR CLIENTS HELPS BUILD AND MAINTAIN STRONG RELATIONSHIPS."

"We have a well-defined approach to implementation that ensures all risks are identified upfront and carefully managed. Quantifi's highly skilled technical and financial experts are committed to ensuring our clients achieve maximum benefit from our solutions by providing exceptional support, value-added services and swift response times," continues Robert.

"The value of any software solution is dependent on the team put in place to implement, maintain and support a clients' investment. Quantifi is dedicated to ensuring firms get the most out of our software and our commitment to work in close partnership with our clients

helps build and maintain strong relationships." Rohan Douglas, CEO, Quantifi

Quantifi's integrated solution delivers cross-asset trading, front-to-back operations, position management, market, credit, counterparty and liquidity management, margining and regulatory reporting. As well as supporting key regulatory and industry practices, Quantifi applies the latest technology innovations to provide new levels of usability, flexibility and ease of integration. This translates into faster time to market, lower total cost of ownership and significant improvements in operational efficiency.



How Can Cloud Computing Transform Your Business?

With the increasing demands from customers, greater regulatory requirements and cost efficiency pressures, more and more firms are embracing cloud strategies to address the modern business imperatives of performance, flexibility, scalability and agility. At Quantifi, we have taken full advantage of the trend towards cloud technology by collaborating with cloud providers like Microsoft Azure.



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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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