IN SIGHT

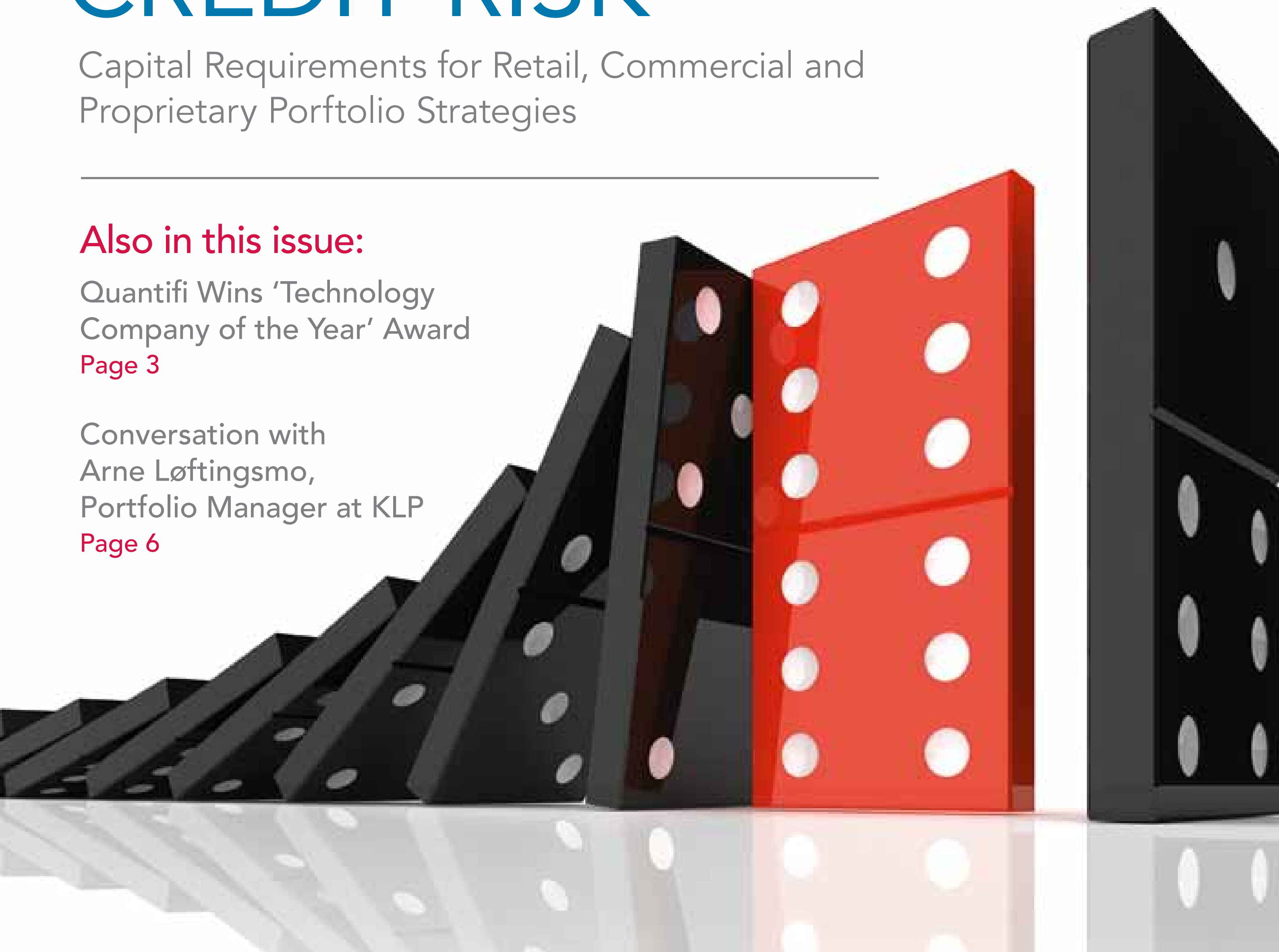
Quantifi

NEWSLETTER

MARCH 2013

MANAGING COUNTERPARTY CREDIT RISK

Capital Requirements for Retail, Commercial and Proprietary Porftolio Strategies



MESSAGE FROM THE CEO

2012 was a successful year for Quantifi. We experienced increasing demand across our product suite including our Analytics, Risk Management, PMS, and Counterparty Risk solutions. In London we relocated to larger office space to support our growing roster of EMEA clients as demonstrated by our 40% growth in EMEA revenue. We have also seen a rapid expansion in the ways our solutions are used and the types of firms that use them, reflecting the profound changes occurring in the financial markets.

In 2013, regulatory mandates continue to drive change. In the OTC markets, these changes are impacting the way financial institutions do business in multiple interrelated ways. Rising capital ratio requirements are impacting bank profitability and return on equity. Banks are also being forced to clear many OTC trades through CCPs. This has led banks to focus on pricing and managing costs (funding, collateral, capital, other) in a consistent fashion at a trade, desk and business level, with a view to maximising profitability.These changes are not just impacting sell-side firms. Central clearing is impacting operations, valuation, and risk management for all buy side firms. In addition, the changing profitability of some bank businesses is creating opportunities for funds and other investment firms to step into areas previously dominated by banks.

This month we roll out our first major release of 2013, Version 11.0. This version upholds a long tradition of rapid innovation and incorporates many exciting enhancements including broader asset coverage, advances in modelling, improvements in usability, and performance enhancements.

2013 promises to be a year of considerable change and potential for the OTC markets. In partnership with our clients, Quantifi has invested significantly to provide a smooth transition for the new financial regulations, and central clearing and to stay abreast of the latest industry best practices. In early 2012 we were the first service provider to support calculating Funding Valuation Adjustment (FVA), which accurately measures the cost of funding on an OTC trade. Continuing our tradition of thought leadership, we have hosted industry seminars on topics important to our clients and are co-hosting two seminars on counterparty risk, in March and April, with Ernst & Young and Capco respectively.

We look forward to 2013 as a seminal year for both Quantifi and the markets. During this period of change and opportunity, we continue to be focused on our clients so that they can rely on us to rapidly respond to their needs as the market evolves.

ROHAN DOUGLAS, Founder and CEO

NEWS

KLP Asset Management Selects Quantifi for Front Office Pricing and Analytics of Interest Rate Derivatives using OIS Discounting

"Multiple curve environments have become the market standard and Quantifi's sophisticated and comprehensive set of yield curve-building functionality matches this new standard." comments Arne Løftingsmo, Portfolio Manager at KLP Kapitalforvaltning AS

Quantifi Releases Version 10.3.1

As part of Quantifi's ongoing commitment to keep clients up-to-date with the latest regulatory and operational requirements, this version provides expanded product coverage, enhanced regulatory reporting and faster sensitivity and scenario calculations when using OIS/CSA discounting.

Quantifi Wins Asia Risk 'Technology Company of the Year' Award

"Quantifi has been industry recognised for many years which is testimony of their deep domain expertise and high level of customer support. Quantifi's market-leading pricing, risk management and data capabilities provide our firm with the necessary tools to support the growing demands of our business" Leon Hindle, Chief Investment Officer at Oracle Capital.

Quantifi Expands European Headquarters

"We are delighted with the 40% EMEA revenue growth we have experienced this year, which we have achieved through exceptional client service and by attracting new clients in major markets globally." Kathleen Del Duca, Director of Operations at Quantifi

EVENTS

Quantifi and Capco Seminar
CVA, Clearing and Basel III Capital Charges
New York City, 4th April

WBS 2nd CVA Conference
Quantifi Presents 'Basel II and Basel III Counterparty Risk Capital Charges'
London, 21st March

Quantifi and Ernst & Young Seminar
Making Strides in Counterparty Credit Risk
London, 19th March

WBS 2nd Interest Rate Conference
Quantifi presents 'New Developments in OIS Discounting'
London, 15th March

AsiaRisk AWARDS 2012

Quantifi Wins Premier 'Technology Company of the Year' Award

Quantifi was recently recognised as 'Technology Company of the Year' in the Asia Risk 2012 Awards. This award recognises best practices and innovation in derivatives and risk management in the Asia-Pacific region and is awarded to the technology firm that has best adapted a solution to suit the Asian market, or developed an Asia-specific risk management or trading system.

"We are honoured to have won Asia Risk's premier vendor award. This recognition is a significant accomplishment and a strong testament to the strength of our ongoing research and close partnership with clients, who ultimately are the final judges of what we do," states Rohan Douglas, CEO of Quantifi. "Our success in this award is a clear indication of our commitment to ensuring that clients can remain ahead of the rapidly changing regulatory environment and market conditions."

The awards were judged by Asia Risk Magazine's editorial team who performed lengthy due diligence. Asia Risk Magazine (October 2012) reported how Quantifi has remained at the leading edge of pricing and risk modelling, with a reputation not only for the sophistication of its software, but also for being one of the first off the block in solving new challenges as they emerge in the marketplace. In particular, the judges highlighted how Quantifi was among the first-to-market with a high performance CVA solution, which has since been adopted by a number of its Asia clients. Client feedback centred around Quantifi's speed of implementation, ease of integration as well as its performance, which is underpinned by the use of high performance computing technology.

"Quantifi's market-leading pricing, risk management and data capabilities provide our firm with the necessary tools to support the growing demands of our business," comments Leon Hindle, Chief Investment Officer at Oracle Capital. "I've been particularly impressed with the sophistication and power of their reporting tool as it provides timely, transparent and consolidated risk reporting which helps to significantly enhance our risk control process. Quantifi has been industry recognised for many years which is testimony of their deep domain expertise and high level of customer support."

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The award-winning Quantifi Risk is a trading and risk management system for OTC products. It provides next-generation valuation, trade processing, risk management and interactive reporting. Easy-to-install and intuitive to use, Quantifi Risk provides an open, scalable system that automates the day-to-day valuation and risk management process. Based on Quantifi's market leading models, Quantifi Risk delivers timely, accurate and comprehensive results.

Asad Moini, Head of EMEA & Asia-Pacific Sales at Quantifi, comments, "Asia is an important market for Quantifi. With existing clients in Australia, Singapore, Hong Kong, Japan and Malaysia, we continue to see increasing opportunities in this region. Markets in continental Asia have been developing rapidly and we believe we are strongly positioned to grow our local presence." ■

COVER STORY

MANAGING COUNTERPARTY CREDIT RISK

Capital Requirements for Retail, Commercial and Proprietary Porftolio Strategies

By DMITRY PUGACHEVSKY & ROHAN DOUGLAS (Quantifi) and **JEAN-ROCH SIBILLE & AURELIE CIVILIO** (Risk Dynamics)

This article studies the conditions for the effective risk management of CCR by detailing and comparing capital requirements, identifying inconsistencies in prudential regulations and applying the various capital approaches on some typical portfolio strategies observed within financial institutions.

PORTFOLIO STRATEGIES

Portfolio strategies for counterparty credit risk management can vary substantially depending on the institution's business models. To capture these variations, we calculated CVA for three different portfolios, with different collateral management strategies, and counterparty profiles.

A is a typical retail bank, using IR swaps and some IR options to mitigate the interest rate gap between asset and liabilities. All the business is performed in the same currency and derivative products are not offered to clients through trading desks.

B is a universal bank, with significant activity on IR derivatives for ALM purposes, as well as trading books to service SME and Corporate clients via currency swaps and vanilla options. Business is performed in a few currencies, and trading positions are mostly closed at the end of the day.

C is an investment bank with a significant amount of vanilla IR or FX derivatives, and equity, exotic and structured derivatives products. Business is performed in multiple currencies and trading is executed for clients and for proprietary purposes. Clients are mostly corporates, banks and any type of financial institution with a lower rating.

TESTING RESULTS

These results analyse how changes in the nature of portfolios affect CCR capital requirements. This section also explores the critical components of CCR capital requirements, including number and types of counterparties, the types of products, the maturity of the portfolios and credit quality of counterparties. Additionally, risk mitigation features like collateralisation are considered, and their impact measured.

Calculation Assumptions

The different assumptions and methodologies used throughout our calculations are listed below:

- Real CDS spreads are used for CVA and CVA advanced calculations, all with recovery 40%;
- PD's in RWA calculations were implied from S&P 1981-2011 historical default rates tables, based on counterparty rating and location;
- In base case we considered zero collateral. For fully collateralised scenario, margin call period is set at 20 days;
- Calculations for all metrics which require advanced method – IMM for RWA (or, default capital) and CVA capital, Advanced method for CVA capital charge – were performed in a full-revaluation Monte Carlo model;
- The following results were produced: CEM and IMM default capital charges (or, RWA), Standardised CEM and Standardised IMM CVA capital charges and Advanced CVA capital charges. For comparison purposes, total CVA for each portfolio is also provided.

Real Portfolio

In line with the previous portfolio strategies, three portfolios were set up with a different number and credit quality of counterparties. Whilst the total notional of each of the portfolios is set at $10 bn, their structure is also different in terms of number and types of trades.

Main sources of differences between the approaches

Standardised formula for Basel III CVA capital charges can be interpreted as 99% VaR on a portfolio with a specific volatility and correlation structure. Advanced formula is defined in the Basel document as the sum of two 99% CVA historical VaRs, defined by most recent and by stressed periods. However, assuming that spread shifts for all counterparties and indices can be scaled by the same ratio, then it is very similar to the Standardised formula which allows comparison of approaches analytically.

One interesting conclusion of such a comparison is that the correlation between counterparties in the Standardised formula is assumed to be 25%, while in Advanced formula it is implied by historical shifts. Another interesting conclusion is that the worsening of counterparty credit and corresponding widening of credit spread has a greater effect on the Advanced method compared to the Standardised approach, other than when a counterparty is simultaneously significantly downgraded. This is because the credit quality in Standardised formula is only reflected in a rating-based weight while in Advanced formula it is almost proportional to spread widening.

Base case - results from the different portfolios

The table below shows that in terms of Default Capital Charges, IMM is always less punitive than CEM. It is well recognised that the IMM approach is more sophisticated and results in significant RWA savings relative to the CEM approach. This is because the IMM approach provides full netting of future exposures while CEM allows netting benefits for the add-on amount of up to 60%. CEM is also considerably more punitive for in-the-money trades.

		Default Capital Charge	
	CVA	CEM	IMM
Retail	(3.087.720)	8.961.155	4.359.627
Wholesale	(16.341.321)	18.381.819	12.851.028
Proprietary	(19.604.451)	28.943.436	15.640.906
CVA Capital Charge			
	Stand CEM	Stand IMM	Advanced
Retail	7.215.199	5.814.989	2.059.956
Wholesale	16.105.908	27.380.981	13.496.462
Proprietary	29.918.119	31.197.962	15.048.240

Regarding CVA Capital charges, one can immediately see that advanced CVA requires significantly less capital than either of the standardised formulas.

An unexpected result is the strong increase in CVA capital charge between the Standardised CEM and the standardised IMM approach for the Wholesale strategy. One explanation for this is that in our test case the Wholesale portfolio is strongly concentrated on a counterparty with large exposure. Whereas for RWA we simply add across counterparties, Standardised IMM CVA formula assumes only 25% correlation between counterparties, therefore concentration for CVA capital charge is penalised.

Collateralisation

To understand how Default and CVA capital charges evolve when collateral is applied, we considered the case of full collateralisation. The results are given in the next table.

		Default Capital Charge	
	CVA	CEM	IMM
Retail	(60.557)	873.031	191.137
Wholesale	(202.972)	2.488.053	339.213
Proprietary	(282.465)	3.979.722	452.943
CVA Capital Charge			
	Stand CEM	Stand IMM	Advanced
Retail	708.496	257.801	48.601
Wholesale	2.146.376	462.833	162.558
Proprietary	4.231.813	584.537	238.008

Note that because of a 20-day margin period, even full collateralisation does not completely alleviate expected loss. Therefore we still have non-zero Standardised IMM and Advanced CVA capital charges, which are both based on positive exposure. Obviously the CEM method results in significantly higher Default and CVA capital charges. This is a well-known drawback of CEM as it only uses current collateral held, while IMM methodology allows future collateral to be projected based on contract terms.

CONCLUSION AND NEXT STEPS

CCR started essentially as a valuation issue. Slowly, market practice and standardised tools have emerged, including the use of CVA desks. However, during the recent crisis, another issue came to prominence, the significant losses that CCR can cause if not managed properly. In response to this pressing matter, regulators have developed many different approaches to measure this new type of risk, including both standard default risk and market risk - leading to various types of capital requirements.

Nevertheless, in the event of another credit crisis, simply realising what is required will not be sufficient in avoiding major losses. What is also required is sound and active risk management. Financial institutions should develop their own internal models to deal with regulatory inconsistencies, complemented with forward looking measures (not only referring to past historical data), and take appropriate actions to mitigate CCR. For all these reasons, it is necessary to have reliable and transparent models that not only provide reporting information, but enable risk managers to assess the potential impacts from their decisions. ■

REQUEST A COPY OF THE COMPLETE WHITEPAPER:
http://www.quantifisolutions.com/whitepapers.aspx

Conversation with Arne Løftingsmo

Portfolio Manager at KLP Kapitalforvaltning AS

Q: What is the history and background of your company?

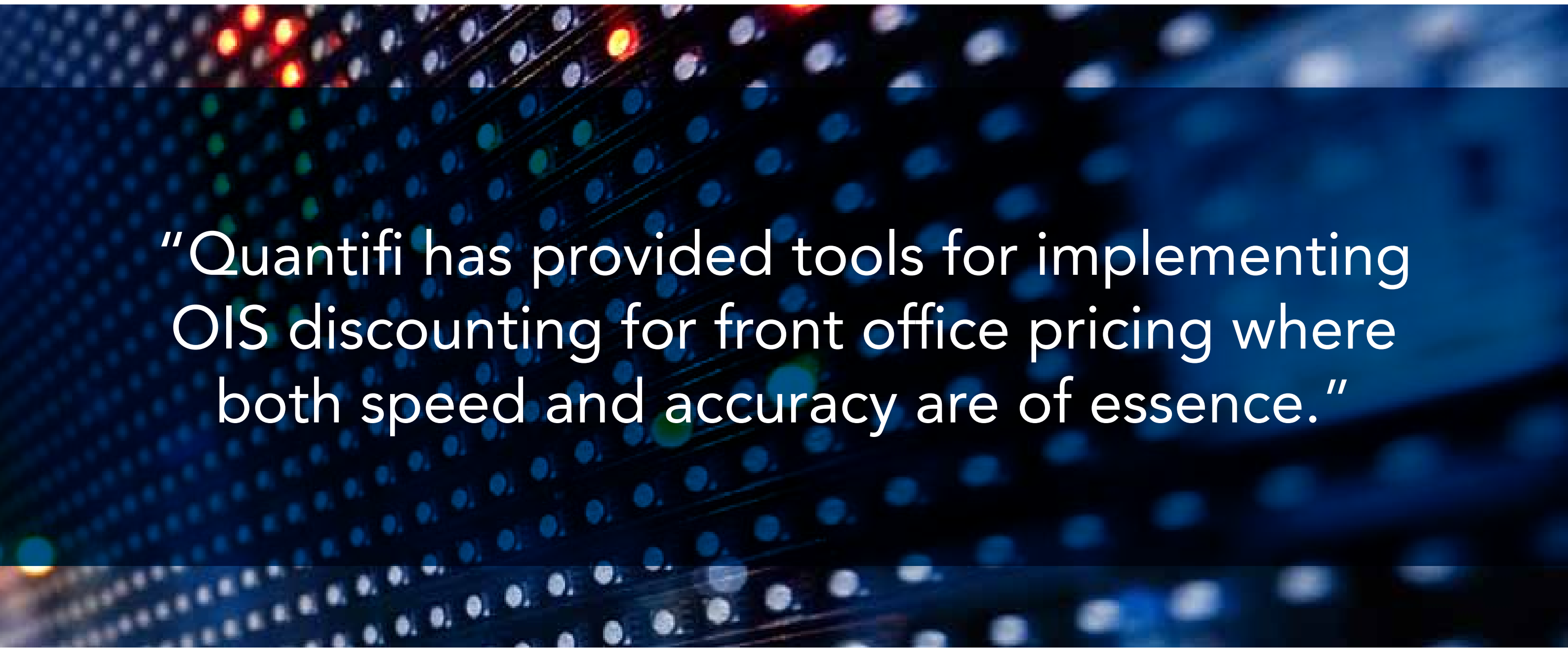
A: KLP Kapitalforvaltning AS is the asset management subsidiary of KLP, one of Norway's largest insurance companies. KLP provides insurance to municipalities and public sector businesses with 320 billion NOK under management. KLP is mutually owned by its customers and has over 800 employees. I have been with the asset management subsidiary for eight years as a portfolio manager where I am co-managing a global fixed income hedge fund. In our fund we concentrate in particular on the Scandinavian interest rate markets where we believe we have an edge, and with very little credit exposure overall.

Q: Over the course of the past 12 months what do you consider to be the most significant developments in the OTC markets?

A: Since the credit crisis we have seen that banks are still retrenching; they have continued to cut their risk and provide less liquidity. A reduction in liquidity has resulted in larger price moves, as there are fewer risk providers to take the other side of end user demand. This gives us the opportunity to step in if prices move from their long-term fair value. That also means that there is less liquidity if one wishes to exit a position, so it is a double-edged sword. One must be comfortable with carrying risk for a potentially long time. Fading liquidity can also lead to some markets disappearing completely. Another development has been the European Market Infrastructure Regulation (EMIR). This has had an operational impact on our business in terms of putting in place new agreements with counterparties and selecting a clearing member for OTC transactions. We have recently chosen Morgan Stanley as our clearing member. EMIR is likely to help reduce operational risk whilst the introduction of central clearing will reduce counterparty and systemic risk, although it is unclear at present as to the full benefits of central clearing.

Q: What opportunities does the current environment bring to your business?

A: The credit crisis that precipitated presented KLP with many opportunities, as we were able to exploit the mis-pricings and dislocations in the market. Even with the current lull in the market I anticipate more volatility and consequently more opportunities going forward for KLP to capitalise on. ECB president Mario Draghi's comment that the ECB will do whatever it takes to save the Euro has been pivotal in calming the financial markets. Nevertheless, the current lull will only last as long as the ECB's plan to buy unlimited amounts of bonds is considered credible. Moreover, it may only be a matter of time before the real economics will catch up with the ECB anyway. I expect we will see continued deterioration in the non-core economics in the Euro Zone and that the weakest sovereigns will suffer fresh funding crises. This is because long-term investors have, in unison, turned away from market weighted bond indexes, which previously have benefited profligate debtors. The current rally in periphery bonds has been driven by fast money, that will evaporate once the ECB removes



its hand. On the other side we have sovereigns that are experiencing ever greater funding needs. Austerity measures have proven self-defeating as the private sector is not 'crowding in' and monetary policy is unable to provide additional stimuli.

Q: Valuing trades using OIS discounting is now the market standard. How much of a challenge is this?

A: There has certainly been a change in the way we did things before the crisis given that all OTC transactions have become collateralised. This, in addition to the emergence of large credit premium, even for short maturities, has meant that old basic assumptions for discounting cash flows do not hold anymore. The need for dual curves has had implications for all our systems; front office pricing models for executing trades, daily mark-to-market in trade capture system and risk measurement. Quantifi has provided tools for implementing OIS discounting for front office pricing where both speed and accuracy are of essence. In previous years, there was not a clear consensus on the methods, although it is now becoming more standardised.

"New regulation is vastly reducing the risk that banks and insurance companies can take. However who is going to step into their place and provide capital to new and existing projects that are the building blocks in an economy?"

Q: Looking ahead, what impact will new regulation have on the Interest Rate derivatives market?

A: It is difficult to predict the impact EMIR is likely to have on the OTC markets as a whole. It will most likely enhance market transparency although that's really in the detail of the regulation. One of the uncertainties though is the amount of collateral firms have to post and also the number of clients who will have to post collateral. One question I keep asking myself in a broader context is, in the end, who ultimately is going to carry risk? New regulation is vastly reducing the risk that banks and insurance companies can take. However who is going to step into their place and provide capital to new and existing projects that are the building blocks in an economy? ■

KLP

Whitepapers

Managing CCR: Capital Requirements for Retail, Commercial and Proprietary Portfolio Strategies

This paper explores how to deal with counterparty credit risk by detailing some of the associated aspects and challenges. It also studies the conditions for effective management of counterparty credit risk. In a joint effort, Quantifi and Risk Dynamics compare capital requirements, identify inconsistencies in prudential regulations and apply the various capital approaches on typical portfolio strategies observed within financial institutions.

Comparing Alternate Methods for Calculating CVA Capital Charges under Basel III

There are two ways for banks to compute CVA VaR, so-called standardised and advanced methods, which depend on their current regulatory approval with respect to other aspects. Furthermore, there is the potential to reduce the capital charges via eligible hedges. This paper, co-authored by Jon Gregory of Solum Financial, explores the capital charges under the two regimes and the capital relief that can be achieved.

Videos

'THE EVOLUTION OF COUNTERPARTY RISK IN THE GERMAN BANKING INDUSTRY'

- Challenges & best practices in setting up a CVA process
- Regulatory priorities and counterparty risk
- How are banks hedging CVA now and in the future?

View video
http://quantifisolutions.com/videos.aspx

Quantifi Launches Latest Version Release

As part of Quantifi's ongoing commitment to keep clients up-to-date with the latest regulatory and operational requirements, this latest release, version 10.3.1, provides expanded product coverage, enhanced regulatory reporting and faster sensitivity and scenario calculations when using OIS/CSA discounting.

"OIS Discounting is now the market standard, however, this introduces analytical complexity and furthermore the performance impact on calculating risk sensitivities can be significant. Version 10.3.1 is our fourth release with OIS discounting which significantly increases the speed of calculations without sacrificing accuracy. In addition to performance enhancements, this release continues our expansion of asset coverage and our support of the latest market developments and regulatory guidelines", comments Rohan Douglas, CEO of Quantifi.

V10.3.1 includes:

- Expanded product coverage
- New and enhanced modelling
- Enhancements to regulatory reporting
- Performance improvements
- Over 70+ other individual enhancements and additional features

ABOUT QUANTIFI

Quantifi is a leading provider of analytics, trading and risk management software for the global OTC markets. Our suite of integrated pre and post-trade solutions allow market participants to better value, trade and risk manage their exposures and respond more effectively to changing market conditions.

Founded in 2002, 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 15 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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