IN SIGHT

Quantifi

NEWSLETTER ISSUE 03 2011

THE EVOLUTION OF COUNTERPARTY CREDIT RISK: An Insider's View

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MESSAGE FROM THE CEO

Even though regulatory uncertainty and market volatility continue to dominate the OTC markets, we are seeing institutions that are profiting from being able to capture opportunities as they arise. This is an environment where an investment in better analytics and risk management can make a difference to profitability. In a similar way, we believe a proactive investment in infrastructure to support central clearing and new regulations will make a difference to future profitability.

On the subject of investing in infrastructure - technology is playing an increasingly important role for the OTC markets and this trend is likely to accelerate with the introduction of central clearing. The complexity of the trading, operational, and risk management systems required to support OTC businesses have dramatically increased. Comparing state of the art from ten years ago to state of the art today highlights the challenges of developing systems that not only meet current needs, but also are flexible enough to keep up with future demands.

At a time when the cost of capital is increasing and profitability is uncertain, the accurate and careful management of capital and return on capital becomes essential to a firms survival. As the complexity of technology infrastructure increases, cost and project risk dramatically increase. An estimated 50% of large IT projects fail (Harvard Business Review Sep'03). This failure carries both a huge cost risk as well as opportunity risk to businesses that depend on timely delivery of this infrastructure. This shifting dynamic is re-defining the efficient boundary of the buy versus build decision. As IT becomes more strategic, institutions need to carefully evaluate and manage their IT spend and focus on IT that provides a competitive advantage while outsourcing at a lower cost the infrastructure that does not.

This month we have some exciting corporate news. I am delighted to welcome Dmitry Pugachevsky, former head of counterparty credit modelling at JP Morgan, as Research Director. Dmitry is a well-known figure in the industry and his extensive counterparty credit and broad cross-asset modelling experience is a great addition to our team. Furthermore, our release of QX.1 demonstrates our significant investment in development and our commitment to ensuring our clients remain competitive by being well-prepared and strategically positioned for future change.

ROHAN DOUGLAS, Founder and CEO

NEWS

Client News:

Varden Pacific Selects Quantifi to Power OTC Trading and Regulatory Compliance

"The unique combination of intuitive data management, fast and accurate risk analysis, and flexible, detailed reporting gives us the confidence to make informed investment decisions whilst providing the transparency and robust infrastructure our investors require. Quantifi Risk was deployed in a matter of days. As it required minimal internal infrastructure and resources, we were able to enter the market quickly and achieve an immediate return on our investment." - Shawn Stoval, Managing Partner, Varden Pacific

Prosiris Selects Quantifi for Risk Management and Reporting

"Given the sophistication of our trading strategy, the key factors in selecting Quantifi Risk are industry leading analytics combined with flexibility and usability. As a recognised leader, Quantifi provides the level of accuracy and sophistication we need to trade and effectively manage our risks. By partnering with Quantifi we now have the opportunity to focus our capital and time on our core business rather than spend time and resources developing an internal solution." - Jerry Chang, Chief Financial Officer, Prosiris

2011 Events:

Credit Risk USA - New York City, September 15

Dmitry Pugachevsky, Director, Research at Quantifi, leads post-conference seminar on counterparty credit risk and CVA

Quantifi Seminar: Counterparty Risk and CVA, What's New? - New York City, October 18

Join Quantifi & PRMIA for an interactive seminar on counterparty risk and CVA and hear from experienced practitioners.

Risk USA - New York City, November 1 - 2

Quantifi sponsors Risk USA

Risk Minds - Geneva, December 6 - 8

Quantifi sponsors RiskMinds, Geneva. Visit us on Stand 4

Rohan Douglas, CEO of Quantifi, talks about the latest version release of its pricing and risk analytics software, Quantifi QX.1

Driven by client needs and transformations in the OTC markets, QX.1 (V10.1) includes a broad range of enhancements across Quantifi's entire product range including enhanced reporting, data management capabilities and broader asset coverage.

What were the key goals for QX.1?

A key driver for QX.1 has been the rapidly changing regulatory and market environment. Our goal is to provide clients with a smooth transition to central clearing, valuation model changes and future regulatory demands including Basel III. Helping our clients focus on their core business by providing them with tools that they can depend on has always been a priority. Another key goal for QX.1 has been responding to client demand for broader asset coverage.

How does QX.1 support the ongoing OTC market changes?

Regulatory and structural changes in the OTC markets are having a profound impact on all aspects of technology, research, and operations. QX.1 demonstrates our long history of being able to rapidly evolve ahead of the market and introduces innovative new functionality as well as broader asset coverage designed to help clients, including:

- Expanded asset coverage matching client demand
- Significant enhancements to counterparty risk management including Basel III compliance
- A unique new plug-and-play interface for client model integration, product extendibility, and data integration
- Expanded data management capabilities
- Additional data vendor interfaces for smooth integration
- A redesigned reporting engine with more flexibility, better reporting, and improved performance

How will your clients benefit from QX.1?

We work hard to make sure our migration process is smooth and simple. Clients will be able to leverage new features immediately. I would expect key benefits to be:

- Produce more detailed reports with enhanced graphics and more flexible reporting for even the largest portfolios
- Easily customise our solutions to specific needs with our new generation of client plug-and-play interfaces
- Leverage Quantifi to support a broader range of traded asset classes
- More easily interface with additional data vendors with expanded out of the box support
- Provide on-desk CVA pricing integrated with Quantifi's pricing and structuring solutions
- Implement Basel III compliance with enterprise counterparty risk solutions

WHATS NEW IN QX.1?

- Expanded asset coverage and product enhancements for FX, FX Forwards, FX Options, basis swaps, callable bonds, convertible bonds, FRAs, Swaptions and credit index options
- Significant enhancements to counterparty risk management including Basel III compliant capital calculations, stress testing, back-testing, enhancements to margin period of risk calculations, collateral thresholds by rating, additional calibration tools and extended product coverage for commodities and inflation
- Expanded data management capabilities to simplify complex data integration and data management
- A new generation of APIs for plug-and-play client model integration, product extendibility, and data integration
- A redesigned reporting engine with in-memory hypercube for improved reporting and drill down flexibility, simplified integration of external data sources, and improved performance for high-volume portfolios

THE EVOLUTION OF COUNTERPARTY CREDIT RISK: An Insider's View

BY DAVID KELLY, Director of Credit, Quantifi
and JON GREGORY, Consultant

Counterparty credit risk management has been evolving for over a decade from passive risk quantification and reserves to active management and hedging. The term CVA (credit value adjustment) has become well-known and represents a price for counterparty risk. Substantial responsibility is being transferred from credit officers to CVA traders, groups with the responsibility of pricing and managing all the counterparty risk within an organisation. Banks today tend to be distributed along the evolutionary timeline by size and sophistication. Whilst global banks are focusing more on hedging CVA, driven by dramatically increased capital requirements under Basel III, smaller and more regional banks, together with other financial institutions such as asset managers are closer to the beginning stages.

Reserve model

Reserve models are essentially insurance policies against losses due to counterparty defaults. For each transaction, the trading desk pays a premium into a pool from which credit losses are reimbursed. The premium amount is based on the creditworthiness of the counterparty and the future exposure, accounting for risk mitigants such as netting and collateral (margin) agreements and the overall level of portfolio diversification. Traditional pre-merger banks and their eventual investment banking partners all used reserve models and exposure limits, but the underlying methodologies were very different.

Banks typically converted exposures into so-called 'loan equivalents' and then priced the credit risk in loan terms. In the early days, loan equivalents were critical to simplify a potentially quite complex future exposure into a single number that could be used for rudimentary calculations. In contrast, the more derivatives oriented investment banks calculated reserves by simulating potential future positive exposures of the actual positions. The simulation models persevered because they more precisely valued each unique position and directly incorporated credit risk mitigants.

By 2000, the simulation based CVA and economic capital reserve model was state of the art although only a few institutions were able to perform exposure limit checks and calculate pre-deal CVA on a real-time basis for new transactions. Institutions had expanded portfolio coverage in order to maximise netting and diversification benefits. However, the down credit cycle initiated by the Enron and WorldCom failures, following the wave of consolidation and increased concentration of risk, forced the large banks to think about new ways to manage credit risk.

While banks had used CDS as a blunt instrument to reduce large exposures, there had been limited effort in actively hedging counterparty credit risk. The need to increase capacity, as well as changing standards for fair value accounting (IAS 39 and FAS 157), spawned two significant and mostly independent solutions. The first solution, driven by the front office, involved pricing and hedging counterparty credit risk like other market risks. The second solution, basically in response to the first, introduced active management into the simulation model.

Front-office market model

An innovation that emerged in the mid to late 90's was incorporating the credit variable into pricing models in order to price and hedge counterparty risk at the position level like other market risks. There were two ways to implement this 'market model'. The first

involved valuing the counterparty's unilateral option to default. The second used the bilateral right of setoff, which simplified the model to risky discounting due to the offsetting option to 'put' the counterparty's debt struck at face value against an exposure.

A few institutions considered transitioning as much of their credit portfolio as possible into the market model, using bilateral setoff wherever possible and the unilateral option model for the rest. The idea seemed reasonable since over 90% of corporate derivatives were vanilla interest rate and cross-currency swaps. Aside from the obvious issues, e.g., credit hedge liquidity, the central argument against this methodology was that it either neglected collateral and netting or improperly aggregated net exposures. The ultimate demise of the market model as a scalable solution was that the marginal price under the unilateral model was consistently higher than under the simulation model.

Another detriment was the viability of having each trading desk manage credit risk or be willing to transfer it to a central CVA desk. In addition, systems had to be substantially upgraded. A central CVA desk proved a more effective solution but raised political challenges over pricing and P&L. In short, the substantial set of issues with the market model caused firms to revisit the reserve model.

Merger of the reserve and market models

Attempts to move credit risk out of the reserve model and into a market model inspired important innovations in the simulation framework related to active management. Banks had been executing macro or overlay CDS hedges, which were effective in reducing capital requirements but ineffective in that the notional amount was based on a statistical estimate of the exposure, not a risk-neutral replication. In addition, that exposure (notional) varied over time.

The introduction of contingent credit default swaps (CCDS) addressed the varying notional by setting it to the fluctuating value of an underlying derivative contract. Whilst CCDS are tailor-made to transfer counterparty risk within a given contract, extending them to cover many netted contracts with collateral agreements would be extremely complex, not least in terms of the required documentation. For these reasons, the CCDS product has not developed strongly despite the increasing focus on counterparty risk.

Hedging also involved perturbing the market rates used in the simulation and then calculating the portfolio's CVA sensitivities, which could then be converted to hedge notionals. This helped stabilise the CVA charge and reduce economic capital reserves thereby improving incremental pricing. There were several issues with this approach. Simulation of the entire portfolio could take hours and re-running it for each perturbed input has restricted rebalancing frequency, although ongoing numerical and technological innovations are collapsing these times. In addition, residual correlation risks, including wrong-way risks, continue to pose a significant challenge.

Current priorities

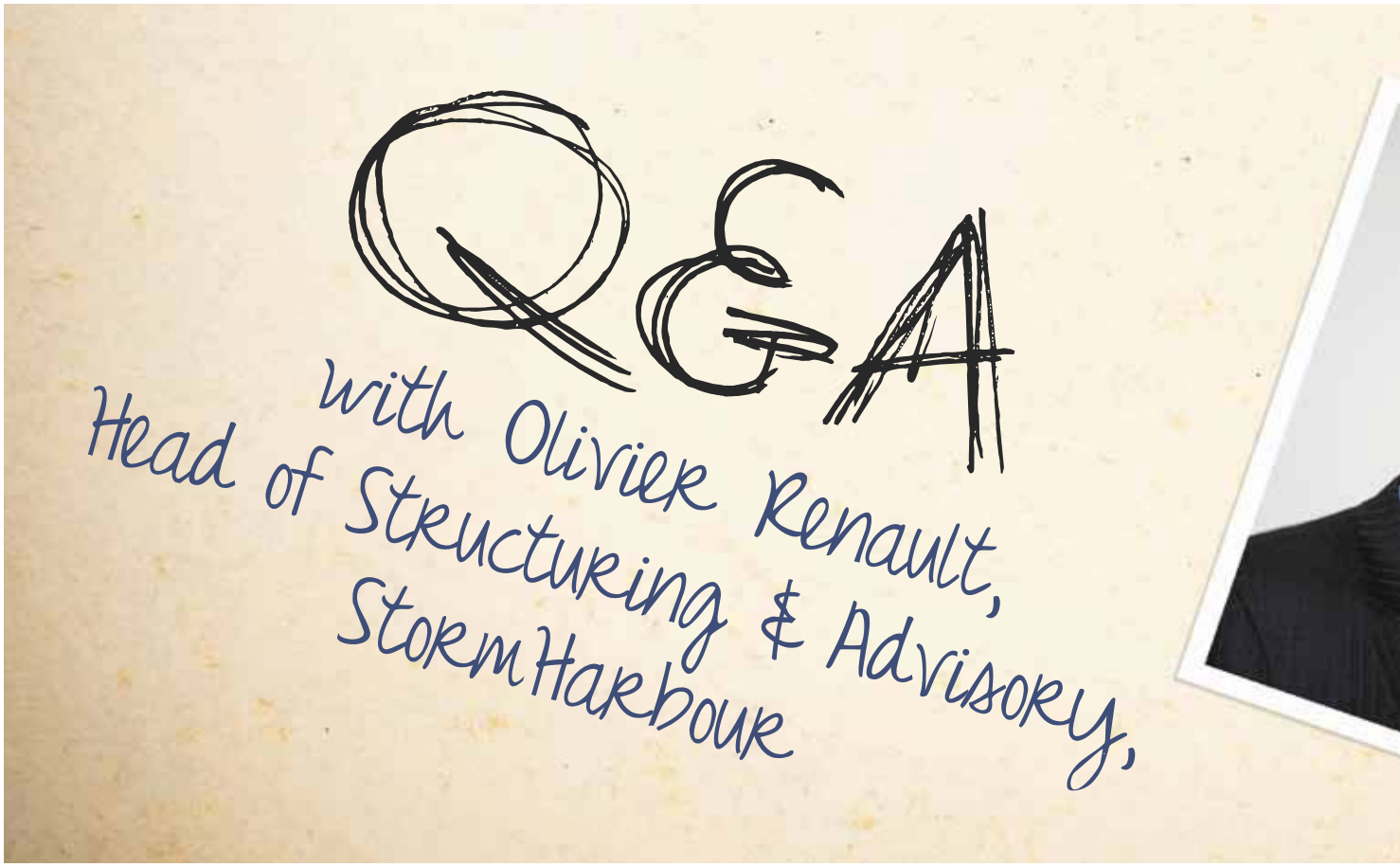
Since the onset of the crisis, firms that had a comprehensive, integrated approach to credit risk management survived and emerged while those that had a fragmented approach struggled and failed. This punch line and the evolutionary process that helped deliver it have resulted in a general convergence toward the portfolio simulation model with an active management component. Several global banks are setting the standard for best practice whereas most mid-tier and regional banks are still balancing the need to comply with CVA accounting requirements with more ambitious plans.

Global banks are pushing the evolution in three main areas. First, there is a recognised need to incorporate wrong-way risk. Basically, wrong-way risk is the case where the counterparty's probability of default increases with its exposure. Second, recognising collateral risks in terms of liquidity, valuation and delivery is clearly important. Third, capturing as much of the portfolio as possible, including exotics, increases the effectiveness of centralised credit pricing and risk management. Since a disproportionate amount of risk may come from products for which they struggle to quantify the CVA (such as credit derivatives), many institutions also favour central counterparties.

Basel III provides more incentive for central counterparties due to the near zero risk weighting of cleared positions. In addition, the Dodd-Frank legislation in the US and EMIR in the EU mandates clearing as broadly as possible. Other influential provisions in Basel III are the additional charges for CVA VaR. With the volatility of credit spreads and potential magnitude of CVA VaR, which may double or even triple regulatory capital requirements for counterparty risk, banks are incentivised to actively hedge CVA.

Another key recent priority has been the use of bilateral over unilateral CVA. Bilateral counterparty risk is often expressed as DVA (debt value adjustment), which mirrors CVA. Prior to 2007, financial credit spreads were extremely low and there was little interest in accounting for DVA. However, the recent severe deterioration of all credit spreads, including financials, has incentivised banks to price DVA in order to offset CVA losses. Although counter-intuitive, since the bank makes money when their own credit spread widens, the use of DVA has become common and generally accepted.

These priorities were a direct result of recent events but most are not new. Counterparty credit risk remains a very complex problem and institutions have had to approach it in stages. Current best practice is the result of a long and iterative evolutionary process from which we can expect another round of innovation. ■



What does StormHarbour do?

StormHarbour is an investment banking partnership focused mainly on fixed income products and with particular expertise of complex structured assets: securitised products, project finance/infrastructure, real estate, and other asset-based finance. We are active in secondary sales and trading, as well as primary markets (raising capital for corporates, banks or specific infrastructure projects) and advisory. The firm was launched in 2009 and we now have approximately 200 people across 8 global offices.

What is your role within the company?

I'm responsible for the Structuring & Advisory team in London. We focus primarily on financial institutions and provide advisory services as well as assistance in the structuring and placement of new transactions. To give you a few examples, we have advised one of the leading US private equity firms on regulatory capital issues revolving around its bid to take over a European bank. We have also been mandated to provide advisory (valuations, stress testing, restructuring proposals) on about $20bn of assets for half a dozen institutions over the past year. Furthermore, we have been active in structuring funding and regulatory capital release transactions.

STORMHARBOUR

Over the course of the past 12 months what do you consider to be the most significant development in the credit markets?

I would say two things: first is the lack of action in primary structured credit markets, particularly in Europe. At the beginning of the year a lot of people thought that 2011 would be the year of the re-opening of primary markets. In fact we saw very little action in public markets but primary issuance was still dominated by retained securitisations and bilateral funding transactions.

The other key theme of the past 12 months is the volatility in secondary markets with the end of the big rally which started in 2009 followed by a spectacular sell-off.

What key challenges and/or opportunities does the current environment bring to your business and how do you intend to manage them?

The challenge is the uncertainty on European sovereign risk and its impact on credit and other markets. While a bit of volatility is good to spur an active trading market, too much uncertainty leads to low volumes of flow trades and a moribund primary market.

Regarding opportunities, we expect a wave of asset disposals from banks and public bodies as well as a

significant pickup in M&A transactions in the financial sector. StormHarbour is very well positioned to assist governments, public sector entities and banks because we have a combination of skills in financial assets, real estate as well as infrastructure finance, which will be the bulk of the sales to come.

Looking ahead, what market developments do you anticipate?

Regulatory pressures are going to penalise banks significantly in particular for structured credit. Furthermore their difficulties in securing cheap long term funding will lead banks to retreat again from commercial real estate, long term corporate lending and infrastructure financing. This is a great opportunity for us to get real money clients involved in these markets and arrange transactions that bring alternative funding providers to banks. We also expect to increase our market share in secondary structured credit trading as banks progressively step back due to increased capital requirements.

How does StormHarbour differentiate itself from its competitors?

Diversification is key. StormHarbour has geographical diversification – we are active in the US, Europe and Asia – and also product and services diversification.

Sometimes flow trading is the main revenue generator for the firm because clients are particularly active and want to either liquidate positions or acquire risk. More recently the volatility has frozen a lot of the flow activity and it was nice to see other areas of the firm, primarily advisory and client capital raisings take over. We are having a very good year so far. That differentiates us significantly from small advisory shops or pure brokers who are relying only on one business line. That is also reflected in our advice: because we have both advisory and execution capabilities, we can recommend solutions that are really actionable, not purely theoretical.

> "While a bit of volatility is good to spur an active trading market, too much uncertainty leads to low volumes of flow trades and a moribund primary market."

What differentiates us from banks is mostly the fact that we work for clients and not for our own book. So our advice is not tainted by whatever legacy position we may have, and because we act as arranger and placement agent on structured trades, rather than as counterparty, the real economics of the deals are much more transparent to our clients. ■

Whitepapers

OIS AND CSA DISCOUNTING

- A new generation of interest rate modelling based on dual curve pricing and integrated CVA is evolving

CHALLENGES IN IMPLEMENTING A COUNTERPARTY RISK MANAGEMENT PROCESS

- Key data and technology challenges
- Current trends in best practices

EVOLUTION OF COUNTERPARTY CREDIT RISK

- Explores practical implementation issues and how approaches have converged
- An insider's view from the major banks that have influenced this market

Request a copy:
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Videos

TRENDS IN COUNTERPARTY RISK MANAGEMENT WORKFLOWS:

David Kelly, Director of Credit Products, explores the challenges and trends in counterparty risk management by tracing typical workflows within a global bank before and after CVA desks, and how increased clearing affects these workflows.

THE UNCLEARED SIDE OF DERIVATIVES

David Kelly, Director of Credit Products, talks to Greg Crawford, Editor, TABB Forum.

View videos
www.quantifisolutions.com/videos.aspx

New Hire

DMITRY PUGACHEVSKY, DIRECTOR, RESEARCH

Dmitry joined Quantifi in September 2011 and is responsible for managing Quantifi's global research efforts. Before joining Quantifi, Dmitry was Head of Counterparty Credit Modelling at JP Morgan. Before starting at JP Morgan in 2008 Dmitry was Global Head of Credit Analytics at Bear Stearns for seven years. Prior to that, he worked for eight years within the analytics groups of Bankers Trust and Deutsche Bank.

ABOUT QUANTIFI

Quantifi is a leading provider of analytics, trading and risk management software for the Global Capital 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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