

IFRS 13

Accounting *for* CVA & DVA

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MESSAGE FROM THE CEO



As we approach the end of 2013, it has been a year of considerable change and potential for the OTC markets. With the focus on risk increasing there remain many dimensions and uncertainties in the market, in particular, areas such as OIS discounting, collateral optimization, clearing and funding.

The new regulatory requirements have dominated the OTC markets over the last several years. While regulations have provided a driver for our business, regulatory uncertainty and the uneven application of regulations are significant hurdles for many market participants. A new market reality has continued to evolve which has fundamentally changed the way firms' trade. Increased capital ratios are impacting bank profitability and return on equity.

Firms are being forced to clear many OTC trades through CCPs. Resulting from this, a new world order of pricing and managing counterparty risk, regulatory costs and funding risk has developed. Before trading, firms need to be able to understand the valuation and profitability of a trade – in other words, calculating the real cost of a trade by taking into account FVA, CVA and DVA - as well as understand the cost of alternate counterparties, CSA options, and clearing venues. We are working with a number of clients to independently analyse costs and optimise collateral across CCPs. The drive we are seeing is from both clearing members and clients of clearing members who need to be able to optimise the choice of clearing house as well as allocate the expected cost of the selected clearing house.

As a firm, we continue to identify and respond to the challenges and changes of the OTC markets as well as engaging with clients and the industry as a whole. In October, we host our inaugural risk conference in London. This conference brings together senior practitioners from leading financial institutions, regulators and other market participants to discuss and share best practices on transformation in the OTC markets.

ROHAN DOUGLAS, Founder and CEO

NEWS

Quantifi Version 11.0 Delivers Enhancements for Central Clearing, Regulatory Reporting and Exchange Traded Products

"Key drivers for V11.0 have been the rapidly changing regulatory and market environments, as well as the increasing demand we are experiencing across our product suite including our analytics, risk management, portfolio management system and Counterparty Risk solutions." Rohan Douglas, CEO of Quantifi

Quantifi Powers Price-Spread Calculator for ICE Credit Futures

"By leveraging Quantifi's experience in financial analytics we are able to provide credit futures participants with a tool that allows them to assess the relative value of the index futures contract against other credit derivatives instruments and to access the information to make informed trading and risk management decisions." Peter Barsoom, Clear Credit Chief Operating Office at ICE

JC Rathbone Selects Quantifi for CVA Analytics

"The combination of Quantifi's product coverage, modelling techniques and advanced technology has significantly enhanced our counterparty risk management. With the advent of IFRS 13, CVA becomes a required component of derivative valuations for many companies." Ivan Harkins, Director at JCRA

EVENTS

Quantifi's Risk Conference

'Transformations in the OTC Markets'
London, 8th October 2013

WBS 9th Fixed Income Conference
Quantifi Presents 'Latest Practical CVA and FVA Advancements' and 'Collateral Optimisation and Margin Efficiency'
Munich, 16-18th October 2013

PRMIA Canadian Risk Conference
Quantifi Presents 'Basel II and Basel III Counterparty Risk Capital Charges'
Toronto, 4-5th November 2013

Quantifi Powers Price-Spread Calculator for ICE Credit Futures

Quantifi recently launched an industry price-spread calculator for credit index futures listed on ICE Futures U.S., which is a subsidiary of IntercontinentalExchange (NYSE: ICE), a leading operator of global markets and clearing houses.

Why did ICE decide to launch the calculator?

Reflecting the growing demand for exchange-traded futures contracts, under new global regulations, ICE recently launched the industry's first credit index futures contract. To support the development of these new and innovative products, ICE requested Quantifi to create a price-spread calculator.

What is the purpose of the calculator?

This intuitive, web-based, price-spread calculator enables market participants to monitor and manage credit risk exposures by performing price to spread and spread to price conversions for ICE Credit Index futures and for credit default swaps.

"We are pleased to work with Quantifi to develop this calculator for our customers. By leveraging Quantifi's experience in financial analytics we are able to provide credit futures participants with a tool that allows them to assess the relative value of the index futures contract against other credit derivatives instruments and to access the information to make informed trading and risk management decisions."

Peter Barsoom
Chief Operating Officer, ICE Clear Credit

How do clients access the calculator?

Available on the ICE website - www.theice.com/credit, the calculator is designed to convert futures prices into the equivalent forward spreads for any given date.

What are the key features of the calculator?

KEY FEATURES INCLUDE:

- Easy accessibility on the ICE website
- Using market calculations, implies the underlying spread corresponding to futures price quotes for settlement dates
- For a given spread, implies corresponding futures price
- Calculations for "When issued" credit index futures based on forward starting indices

"The development of innovative, new exchange-traded alternatives to traditional OTC products is an exciting step for the market. They have generated significant interest from our clients and we are happy to work with ICE to help facilitate development of this market."

Rohan Douglas, CEO, Quantifi



IFRS 13

Accounting for CVA & DVA

By **DR. DMITRY PUGACHEVSKY**, Quantifi and **DR. ROMAN BEDAU**, Deloitte & Touche GmbH

IFRS 13 (International Financial Reporting Standards) came into effect on 1st of January 2013. The International Accounting Standards Board (IASB) issued IFRS 13 in May 2011 to improve the consistency of fair value measurements. IFRS 13 establishes a single source of guidance for fair value measurements for all financial instruments. It clarifies the definition of fair value in general as an exit price and enhances disclosures about all fair value measurements.

The definitions are not entity specific and are determined from the perspective of market participants. Therefore, it is necessary for the measurements to take into account all essential risk factors which influence the fair value. In this context, the pricing of OTC derivatives becomes a complex and challenging task.

According to IFRS 13, fair value measurements have to take into account all significant risk factors, including credit risks i.e. counterparty risk for OTC financial products. In order to reflect the credit risk of the counterparty, of an OTC-derivative transaction, an adjustment of its valuation has to be made. Therefore, not only does the market value of the counterparty's credit risk (CVA) need to be taken into account, but also the company's own counterparty credit risk (debt valuation adjustment - DVA) – has to be considered in order to calculate the correct fair value.

Bilateral CVA adjusts the fair value to account for expected losses that result from the default of the

counterparty or the company itself (CVA should be evaluated at the counterparty level). A comprehensive evaluation needs to take into account the time dependent dynamics of the derivatives' market values as well as an estimate for the probability of default of both contractual parties. Potential correlations between both aspects should be factored into the model too. More common practical approaches waive complex correlation structures and reduce the problem of quantification for the following statistical values:

- The expected exposure (EE) determines the losses of the surviving contractual party in case the counterparty becomes insolvent. Notably the expected exposure covers collateral agreements defined in the credit support annex (CSA) as well as netting agreements. Best practice methods to determine the expected exposure are Monte-Carlo simulations. Alternatively, less computationally intensive methods based on simpler approximations such as the current exposure with an appropriate add-on term may be applied.
- Probabilities of default (PD) and loss given default (LGD) provide an estimation of the probability of counterparty's defaults over time. This information can be derived from market noted credit default swap spreads. Additionally, market implicit information can be used to determine the LGD. An alternative approach for finding the LGD expressions consists of relying on rating information as well as standard assumptions for LGD determinations.

Calculating CVA

There is a relatively straightforward approach, occasionally referred to as Quasi CVA, whereby the counterparty credit spread is added to the discount curve applied to the cashflow values of the contract. For example, to evaluate Quasi CVA for 5-year swap which receives floating rate 2% and pays fixed coupon 4% for a counterparty with credit spread 3%, one has to first discount cashflows at riskless interest rate (2%), discount them at risk carrying rate (5% = 2% + 3%) and then capture the difference between these two valuations. Note that this method only provides a reasonable approximation of the CVA for instruments with positive cashflows and trades heavily in-the-money.

The reason that at-the money or even out-of-the money swaps produce non-zero CVA is because CVA is an expectation of future losses which are incurred by the bank if counterparty defaults when MTM of the trade is positive. Therefore, CVA is proportional to a zero-strike call option on a future MTM, referred to as Expected (positive) Exposure (EE). The exposure of the trade depends on volatilities of underlying assets, even if the trade itself does not.

When calculating exposures for simple stand-alone instruments like swaps and forwards, one can use European swaptions priced with Black's formula. However, taking into account netting and collateral requires performing multiple valuations under a host of different scenarios. This allows netted exposure profiles, for any given portfolio of contracts, to be calculated and for collateral to be applied consistently, therefore reducing potential exposure for both counterparties.

Consistent CVA evaluation involves running a Monte Carlo simulation of market dynamics underlying the valuation of each financial instrument or portfolio. Each market scenario is a realisation of a set of price factors, which affect the value of the financial instrument; for example FX rates, interest rates, commodity prices. Scenarios are either generated under the real probability measure (where both drifts and volatilities are calibrated to the historical data of the factors) or under the risk-neutral measure (where drifts must be calibrated to ensure there is no arbitrage of traded securities on the price factors). In addition, volatilities should be calibrated to match market-implied volatilities of options on price factors where such information is available.

Having calculated the EE profile, CVA is calculated by multiplying the EE with probability of default (PD) and loss given default (LGD). CVA can be approximated by multiplying the average of the EE by the CVA spread. There are several techniques to obtain the CVA spread, although the current Basel3 recommendation is to use CDS credit spreads of the counterparty or its proxy.

Note that the same Monte Carlo simulation can be used for calculating PFE (Potential Future Exposure) and EPE (Expected Effective Positive Exposure). While PFE's are important for calculating Economic Capital and setting internal limits for trading desks, EPE's are part of IMM (Internal Model Method) calculations for Basel RWA's (Risky Weighted Asset). Therefore, by building comprehensive Monte Carlo models one can achieve consistent valuation for regulatory, accounting and internal limit purposes.

The Fair Value adjusted for bilateral credit risk equals risk free valuation, minus CVA plus DVA. Therefore, to complete the calculation one must offset the CVA by the DVA. The DVA is calculated by taking into account the opposite side of the exposure profile (CVA from the counterparty's perspective). This can be achieved by calculating the Expected Negative Exposure, which can be performed during the same Monte Carlo run without any extra expenditure of time. Common market practice involves taking into account correlation between own and counterparty defaults. This is achieved by either using separate copula-like calculation or as part of a general wrong-way risk set-up. Quantifi recommends the latter as it makes it easier to incorporate correlations between own default, counterparty default, and market factors.

Conclusion

The introduction of IFRS 13 requires the calculation of complex variables, such as CVA and DVA. In addition to firms operating within the financial services sector, the introduction of IFRS13 will have significant implications for all firms, including corporates, that carry a financial or non-financial asset at fair value.

Quantifi  Deloitte.



Transformations in the OTC Market

Senior practitioners from across the industry provide their views on the developments and key challenges facing the OTC market.

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

Jean-Roch Sibille: When the Solvency II regulatory texts are finally stabilised, there could be opportunities for arbitrage between Solvency II and Basel III regulations. Banks and Insurance companies may have incentives to continue working together on some investments, for example for illiquid loans provided to mid-cap companies, for Euro Medium Term Notes (EMTN) products, for real estate structure products or for providing funds to some arbitrage desks.

Q: What do you consider as key challenges facing the OTC market going forward?

Prof. Moorad Choudhry: I think the biggest challenge is actually a data management one. The new era of OTC derivatives is really one of collateral optimisation, and impact on balance sheet funding. Basically market participants will in effect be funding a long-dated "asset", arising from the collateral funding requirement. This calls for real-time data processing, as participants

will need to know the exact shape and content of their balance sheet, in terms of collateral requirements and collateral availability, on an intra-day basis. In essence it's a big IT challenge. That and ensuring the availability of sufficient collateral of acceptable quality.

JRS: We are stuck between low interest rates and clients requiring guaranteed capital. It is of course difficult to satisfy these requirements. Therefore, we rely more on unit linked products for which the risks is kept by the client. For guaranteed capital products, for which the insurer takes the risks, we try to rely more and more on cash flow matching strategies to minimise interest rate risks and on the use of EMTN products.

Q: Looking ahead, what market developments do you anticipate?

MC: It's a tough one to call because we are entering into a potentially new way of doing things, with CCP and greater emphasis on collateral requirements to minimise counterparty credit risk, and there may be

consequences down the line that weren't intended. But with exotics not expected to be included in CCP, and valuation issues made more pressing with the impact of FVA, it is tempting to think that we may head more towards a re-emphasis on vanilla derivatives. It could be that a large majority of market participants risk hedging requirements can be met with vanilla instruments.

Paul Lewitt: Currently the lack of dealer risk capital coupled with the regulatory uncertainty is creating an unstable, deeply illiquid market. Profitability will continue to fall in the markets businesses at those firms not supported by a core franchise. Marginal players will retrench and reduce their product offerings. Ultimately I expect there will be far fewer "universal banks" but stronger super regionals supported by their franchise. In response I expect buy side trading platforms, allowing firms to deal direct, will proliferate, further accelerating the fall in dealer profitability until some equilibrium is reached where dealers can earn fair returns on the risk capital they employ.

Mariam Harfush-Pardo: At the beginning of September 2013, the Basel Committee on Banking Supervision and the International Organization of Securities Commissions (IOSCO) released the final framework for margin requirements for non-centrally cleared derivatives. Under this framework, all financial firms and systemically important non-financial entities that engage in non-centrally cleared derivatives

will have to exchange initial and variation margin commensurate with the counterparty risks arising from such transactions. The framework has been designed to reduce systemic risks related to OTC derivatives markets, as well as to provide firms with appropriate incentives for central clearing. The requirement to collect and post initial margin on non-centrally cleared trades will be phased in over a four-year period, beginning in December 2015 with the largest, most active and most systemically important derivatives market participants.

Paul Lewitt
Former Global Head of Credit Trading
Lloyds Banking Group

Prof. Moorad Choudhry
Department of Mathematical Sciences
Brunel University

Dr. Mariam Harfush-Pardo
Market & Counterparty Risk Technical Specialist
Prudential Regulation Authority

Jean-Roch Sibille
Head of Life & Financial Risks Management
AXA Belgium

Quantifi Launches Latest Version Release

Quantifi's latest release, version 11.0, includes significant improvements across Quantifi's entire product suite. Continuing Quantifi's on-going commitment to clients, V11.0 delivers the tools needed to stay abreast of regulatory and accounting demands including central clearing, Basel III, EMIR, Dodd-Frank and IFRS 13.

Version 11.0 has 100+ individual enhancements including:

Expanded Asset Coverage

- Expanded support for Equity Derivatives
- Expanded support for exchange traded products across commodity, equity, and fixed income markets
- Expanded support for exotics and hybrids

Modelling & Regulatory Updates

- Significant performance improvements for OIS/CSA sensitivity calculations
- Expanded scenario calculations covering CCAR and EBA stress tests
- Expanded limit management functionality

Data Management

- New data management technology based on big-data techniques for improved scalability and performance
- New out-of-the-box ETL framework for large-scale real-time data integration with automated validation
- Improved connectivity with additional out of the box data feed support

Watch video interview with Ellen Stars, Pre-sales Manager, Quantifi
<http://www.quantifisolutions.com/videos.aspx>

Events

Continuing our tradition of thought leadership, Quantifi hosted two industry seminars, in March and April, with Ernst & Young and Capco respectively. The events were attended by 120+ delegates from across the financial services industry.

- Quantifi and Ernst & Young, London
'CVA, Clearing and Basel III Capital Charges'
- Quantifi and Capco, New York
'Making Strides in Counterparty Credit Risk'

View seminar video highlights:

<http://www.quantifisolutions.com/videos.aspx>

Whitepapers



- IFRS 13 Accounting for CVA & DVA
- Comparing Alternate Methods for Calculating CVA Capital Charges under Basel III
- OIS & CSA Discounting
- Measurement and Management of Counterparty Risk
- Managing CCR: Capital Requirements for Retail, Commercial and Proprietary Portfolio Strategies

Request a copy:

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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 16 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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