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THE FVA DEBATE CONTINUED

John Hull and Alan White

ABSTRACT

This article continues the debate about whether FVA should be charged when derivatives portfolios are valued.

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When we first wrote arguing that, contrary to industry practice, derivatives prices should not include a so-called funding value adjustment (FVA) to reflect the cost to dealers of funding their hedging portfolios, the interest it would generate never occurred to us (see *Risk*25, July 2012, pages 83 – 85, http://www.risk.net/risk-magazine/analysis/2188684/risk-25-the-fva-debate, and *Risk*, September 2012, pages 18 – 22 and 23 – 24, http://www.risk.net/risk-magazine/feature/2202234/traders-close-ranks-against-fva-critics, http://www.risk.net/risk-magazine/opinion/2202189/in-defence-of-fva-a-response-to-hull-and-white). Much to our surprise, we have been inundated with responses from practitioners all over the world on both sides of the argument. It seems that, without intending to, we have touched a nerve. We respond here, and in a technical article available online.[1]

Those who disagree with us argue that the Black-Scholes-Merton (BSM) analysis depends on borrowing at the risk-free rate. When this was assumed to be Libor, it was not an unreasonable assumption that banks could borrow at the risk-free rate. But now that Libor is no longer seen as risk-free, the assumption is unreasonable, and an additional spread needs to be accounted for in the price, they believe. The existence of a single arbitrage-free price depends on markets being complete – that all risks can be perfectly hedged. In reality, they argue, incompleteness allows for an interval of prices, and this justifies inclusion of FVA.

There are a number of responses to this. One is that the Merton argument is not the only justification of BSM – economic arguments, such as Fisher Black and Myron Scholes's original argument based on the capital asset pricing model, give the same result and do not assume any risk-free borrowers. All they require is that in equilibrium a riskless portfolio should earn the risk-free rate. We may not know exactly what the risk-free rate is, but the concept of a risk-free rate is clear and there are excellent proxies for it. Another response is that when the possibility of a dealer defaulting is considered – as it should be – dealers' expected funding cost is the risk-free rate because the spread above the risk-free rate is compensation for that default.

A further point is that advocates of FVA appear to argue that value depends on the decision to hedge – we find this strange. As for incompleteness, the interval of arbitrage-free prices is quite

[1] See John Hull and Alan White "CVA, DVA, FVA, and the Black-Scholes-Merton arguments" Working Paper, 2012. Available at www.rotman.utoronto.ca/~hull

small, while the FVA depends on the bank's credit spreads and can be arbitrarily large – there is no doubt it can move prices outside the interval.

We maintain that FVA should not be included. When a dealer hedges, it reduces its risk, and will be rewarded with a lower funding spread. The marginal cost of funding hedged transactions corresponds to the riskiness of the hedge. FVA advocates respond that most of a bank's debt has been issued at a fixed rate and so cannot change; also that as markets are not perfectly efficient the process will be inexact. We agree that there may be some stickiness here – but including an FVA would overstate it. For good management the funding cost for any activity should reflect its risk. Charging trading desks the same spread regardless of their risk encourages them to take on more risk.

The key question in this debate appears to be whether the debit valuation adjustment (DVA) that accounts for the dealer's own-default is a real benefit or an accounting quirk. We distinguish between what we call DVA1 and DVA2. DVA1 – which seems to be commonly accepted – is the benefit arising from the possibility that the bank defaults on its derivatives transactions with the counterparty. DVA2 arises from the possibility that the bank may default on its borrowings – and seems to be more controversial. Accountants signalled acceptance of DVA2 in the Financial Accounting Standards Board's directive 159 in 2007.

Previously we suggested that the funding desk should charge the risk-free rate on funding for derivatives desks. Many readers complained that this would lead to the funding desk operating at a loss – but this is not so if DVA2 benefits are allocated to the funding desk. If the funding desk borrows at the risk-free rate plus 200 basis points, it should receive DVA2 worth 200 basis points in the form of its option to default.

We have some sympathy with people who have difficulty accepting DVA2. How can it be that a bank or its shareholders gain when the bank experiences financial difficulties? The gain arises because the lenders are absorbing some of the costs of the bank's poor performance instead of shareholders. This can be monetised by repurchasing the now cheaper debt.

In the end, the reporting of DVA2 is just a move to market accounting. For those who believe that DVA2 is an unreal accounting abstraction that carries this too far, FVA makes sense: it is equal but opposite to DVA2, so can be regarded as a way of removing it from pricing. But we believe that the DVA2 benefits are real and should accrue to the funding desk – this means FVA should not be included in prices.