

# Derivatives valuation – challenging the process

*Valuation of derivatives instruments has become a key focus for regulators and banks since the onset of the financial crisis, leading to greater demand for transparent and independent valuations. A group of industry experts convened in London recently to discuss the key issues*



**Risk:** Briefly describe current practices at financial services firms in terms of the acquisition of, storage and use of valuation data for derivatives transactions. Why have these transactions proved problematic?

**Ralph Baxter, ClusterSeven (RB):** There are many different kinds of products. Some are vanilla, high-volume products with low margins; some are complex, low-volume products with high margins. To talk about the valuation of an entire portfolio that contains all these different complexities gives you an idea of the difficulty of the problem we are facing. Most organisations go about it by taking slices of that portfolio and using different software technology to address various parts. An organisation like Xenomorph will be covering the more complex areas. Rule Financial will help put those pieces together and decide where the line between those two worlds sits. We are at the far end of the complexity, the illiquid end, which is where people have run out of options in existing software products and will use typically end-user solutions such as Excel to fully bring the suite together. It's the fact that you're relying on all these different product components that really creates the problems. The only alternative is to start with a platform that is very granular, that requires constant maintenance that only the richest organisations in the world are capable of taking. Everyone else has to buy things off the shelf. Organisations have to figure out how to stack those slices together and join them up. Spreadsheets tend to be the glue that joins things up. We live as a glue layer in an organisation at the complex end.

**John Collins, Rule Financial (JC):** We need to separate different types of firms. The challenges are very different for a bank as compared to an asset manager or an insurer, and so forth. There may also be different views on models within the same firm. Some of the problems we've seen relate to the way in which valuations are distributed across the firm. Warehousing seems to be increasingly important as firms seek a common source of valuations and associated risk data for all downstream processes.

## The Panel

**Ralph Baxter**, Chief Executive, ClusterSeven

**Eric Benhamou**, Chief Executive, Pricing Partners

**John Collins**, Head of Risk, Rule Financial

**Gavin Lee**, Chief Operating Officer, SunGard – Reech

**Brian Sentance**, Chief Executive, Xenomorph

Then we're into the issues we face around the standardisation of pricing and valuation of data upstream. There is often a plethora of pricing processes or valuation processes in a given firm and, for example, there's rarely a standard curve in a given organisation. The challenge is, at one level, to bring valuation information together in a way that can be consumed by various users in that organisation. We're into a world where differences become particularly problematic.

**Gavin Lee, SunGard – Reech (GL):** What we have seen as a change in acquiring and storing data is that – certainly on the buy side and some of the servicing type organisations – the counterparty valuation that was good enough no longer is. What organisations are having to do is to source another valuation and put together some kind of validation process, which they then compare to a counterparty's. They then have to set up tolerances they have to investigate. That's what causes these organisations such big problems.

**Eric Benhamou, Pricing Partners (EB):** People don't trust the rationale of valuations anymore and they want someone to control and to challenge them. That's why they are coming to Pricing Partners because they want to find people who are independent, who don't have a conflict of interest and who will try to do their best to provide as much transparency and accuracy as possible to challenge and explain the valuation.

**Brian Sentance, Xenomorph (BS):** Clients are unhappy with some of the leading market valuation service vendors because there isn't a lot of transparency behind the data they provide, the valuations and methodologies they use. Clients want to understand the whole picture. The buy side is driven by the capability to compete in terms of product, the funds they have and the capability to offer derivatives, but not necessarily always having the in-house expertise. We're seeing more quants coming into buy-side institutions, which is a step forward.

There are also the politics to consider. On the sell side, there are little fiefdoms of by-products and everyone has their own curve and are valuing things differently. We've seen a closer relationship between market and credit risk. On the buy side, the issues change in terms of the ownership issue – what's the purpose of risk management and how do they fit in for the sell side and buy side? Is risk management going to be more active and actually do hedging and use valuations? There are a whole set of issues that are not related to technical areas. The most technical one is the data issue and the capability of systems to cover new asset classes quickly.

**Risk: Is the regulatory community doing enough to emphasise the fundamental importance of valuation data issues to financial services firms? What regulatory initiatives or intervention do you think are necessary on valuation data?**

**JC:** From a regulatory perspective, the emphasis must be on things like standardisation, transparency and fit-for-purposeness of a given valuation. To take a valuation and look at it, say, within the context of a UCITS III fund in an asset manager, which could be facing a retail investor, the standard that is required in that situation is different from the standard required in, for example, the same valuation for proprietary trading within an investment bank. We've seen the consequences of valuations going wrong. It's clearly an area of regulatory focus. A lot of activity will be seen around central clearing. If certain vanilla over-the-counter derivatives move on to central clearing platforms, which is not necessarily the slam dunk it is sometime presented as, the problem is to some extent obviated. Access to valuation data is important. Valuation can't be too prescriptive, nor access to it too restrictive. It's important to have access to risk sensitivities, for instance, the outputs from valuations, to manipulate those, to be able to recast valuation on several different scenarios. Regulation is a double-edged sword.

**GL:** One regulation that has come out requires the categorisation of the valuation in terms of liquidity. There are categories of one, two or three, right up to something that is completely marked to model. That's quite important. By putting categories around these valuations allows anyone who is looking at a financial statement or at the valuation itself from an audit perspective to be able to determine the reliance he wants to put upon that transaction. The regulators have said there need to be independent valuations. However, they have not actually defined 'independent'. A lot of organisations will have another department – a middle office or a control group – that are doing the valuations themselves. They are still using the same data, the same models. I'm not convinced that that is truly independent. We need to see from the regulators a real definition around what they mean by that.

**EB:** Regulators want valuations to be justified. For instance, in France, regulators have urged large insurance companies to come up with second valuations. They want to challenge

valuations from the sell side. We saw the same in Germany and we are aware of similar discussions in the UK. It's going in the right direction, but regulators need to define exactly what second valuation means. If firms want to challenge valuations, they need outside valuations.

**BS:** Regulators should be more prescriptive in terms of multiple models and firms having that capability. They should also be more prescriptive around the process of bringing new products to market. The simplest thing is to restrict the total notional size of new products traded.

Regulators have said that spreadsheets should be treated as an IT asset. If firms make the conscious decision to let front offices use spreadsheets, how are they controlling that? Whether that's to provide data to those spreadsheets, to front-office data management and bringing front office into a data management world; or maybe with a combination of what ClusterSeven is doing, which is watching what is going on in the front office and reporting from it. The final thing about regulations is that I prefer principles rather than rules because you wouldn't want everyone to be valuing products the same way or we will end up with the same kind of problems as we have seen over the past couple of years.

**RB:** Regulators in the UK have always tried to regulate according to principles and output. The process of delivering numbers is nowhere near the same for each institution. The problem the regulator has is not only to set expectations around information, which is provided, but also to be able to look inside firms to see the processes by which those numbers are delivered. All the processes that we've talked about, if done with appropriate knowledge by people who understand them, will deliver the right answers. The trouble is, if people feel that they can follow the rules by ticking boxes, rather than coming to grips with what they are trying to achieve, then you end up with something that won't be satisfactory when things get tough.

**Risk: What regulation is under way at both banks and buy-side firms to improve valuation data and address its crucial role in activities such as portfolio reconciliation, dispute resolution and T+0 settlement?**

**GL:** Both buy-side and sell-side firms are choosing their partners very carefully. They want to make sure that the provider of these valuations or data will still be there in a year's time. The other thing they are also being very cautious of is whether they are going to receive consistent data. During the crisis, a number of vendors ceased providing valuations at the most crucial points because they weren't sure where the market was.

Secondly, how transparent is the valuation that is being provided? We're providing an application service provider service at Reech. The client can log on the system, look at the valuation and, by clicking through some buttons, get not just the discount factor and zero rates, but also the components used in the boot-strapping in the yield curve, the conventions of that yield curve, right down to the volatility surface. It's a full surface across maturities and strikes. All the data is available for the client to understand how the valuation was arrived at. Things like that are very important for portfolio reconciliation and dispute resolution. We also think it is very important for the service that we provide to have a team of financial engineers work with our clients to resolve any kind of valuation discrepancy. There always will be valuation discrepancy.

**EB:** We want to provide ultimate transparency. At Pricing Partners, we sell both a pricing library and independent valuation service. It means the client can use the same tool we're using in the independent valuations service that he buys with a pricing library. A year ago, we started providing a source conversion of the software so that, if the client wants, he can see the detailed pricing model used. We also found a way to give detailed market data, the values, the source, justifying the choice on the pricing model. Buy side is looking for such initiatives. On the sell side, you need to provide to your client some justification about your valuation. At Pricing Partners, we provide second valuation for a significant amount of equities and interest rate derivatives.

**BS:** From the sell side, we are seeing more willingness to contemplate defining benchmark curves across the whole organisation, for valuation purposes, for consistency around the underlying data. We're focused on the data management side of things. With some pricing models, there is a problem with a lack of understanding of underlying data, there is a lack of appreciating the practicality of what's feeding those models. Another request we are getting from our clients is the ability to provide an 'as-at-a-point-in-time' valuation. For instance, I've got today's value and the assumptions. But let's rewind the clock to 77 days ago – why was it valued that way then versus the valuation today? That's what we do in terms of being able to store market data, reference data and static data on a historic basis and a current basis and being able to handle complex data sets.

**RB:** Firms are seeking external services to provide those Excel valuations. But they then end up with a wealth of more information that they have to conduct reconciliations on, that they have to account for differences that exist. That then generates another set of questions. From our perspective, what we therefore see is a lot of information that is being generated from an evolving data management environment having to be assembled in spreadsheets and validated before being passed up to management. At the same time, a lot of that information is coming through channels that are not as well structured as what they will be going forward, so a lot of that data manipulation is taking place in spreadsheets as well. We are heading towards a data warehouse but the journey there is full of demands from the top and many sources of information from the bottom. Our job is to help people keep an eye on whether those spreadsheets are behaving themselves.

**JC:** What I see within the sell side is a desire to establish coherent, firm-wide frameworks for the valuation process, or at least to standardise certain elements of it, such that there is a single pricer per product. The biggest challenge to that are business silos, desk silos and silos within the risk organisations. Getting transparent, standardised valuation data originating from a single point within the front office and which is then extracted into some kind of warehouse architecture, and made available in a fit-for-purpose form to any downstream consumer, is where the sell side is aiming a lot of energy at the moment. A number of risk organisations within Tier-I banks have broken down internal barriers and brought together their credit risk and market risk organisations into a single risk organisation.

I contrast that with our experience with the buy side. Buy-side firms are consuming different valuations within the same firm, and these often originate from external vendors, particularly for middle- and back-office purposes. I wonder if it is better for the buy side to adopt a model where a single valuation is used across the

firm, both front office and middle and back office, via a platform as the big asset managers do. But that is an enormous challenge. It's a paradigmatic shift from where some buy-side firms are.

**Risk:** What are common roadblocks within organisations to implementing a more robust approach to valuation data? Are they, for example, cost, culture or infrastructure? How can these roadblocks be overcome to smooth acceptance?

**EB:** Many times when we had gone into firms and tried to review existing stuff we had to fight the culture. Sometimes there were issues about the cost. Firms don't calculate how expensive it is when it's done internally but, when it comes to outsourced solutions, they immediately see the cost.

**BS:** The history of the data management sector comes from a back-office focus. At the other end, you've got the market data, front-office, trading focus. In the middle, there are departments in collateral across all these different areas for which we need to provide a single price, a single set of data management. It's got to include what the front office does and not think of that as an afterthought. One of the problems that comes in from that is, culturally, the front-office people have quite rightly said: "We will put our data into your system but how long is it going to take?". If it's an in-house system, it could take a month to go through regression testing to get the system done. From the vendor's perspective, they may not support it or they could charge such and such to customise it. That's not going to work.

**JC:** Culture may be the biggest single roadblock. The head of a desk is remunerated on his profit and loss (P&L) and P&L is generated by valuation. There are Chinese walls, which compound difficulties in the standardisation process. There are very fundamental roadblocks such as budgets. Any process of standardisation at a firm-wide level is a big, long-term project. Who pays for it? How do they pay for it?

**GL:** Cost is a very important point. It is what we really focus on, so that our clients pay for the valuation that they use. If you want one valuation, you pay for one valuation. A lot of other vendors are adopting a similar approach.

The second roadblock is around operational risk. Introducing a new service can introduce new risks and new issues. We've addressed this by introducing standard application programming interfaces that allow information in and out of the system. All the data we provide and information that we use are programmatically interfaced for downstream processing.

The other roadblock is that getting a valuation on T+2 and T+1 just isn't any good anymore. That's something we've dealt with by doing same-day valuations, with different snapshots throughout the day. The crisis that we've seen around credit has introduced many things and one of them is collateral management and collateralisation. You need to value your portfolios, including your complex derivatives, in order to exchange collateral, so you need to get that valuation on a timely basis.

**Risk:** Please expand on the ways that robust valuation data can be incorporated into risk management modelling, including scenarios and stress-testing, to improve the results those models can achieve.

**BS:** A year ago, I was at a talk where someone pointed out that it wasn't their value-at-risk (VAR) models that had failed in the crisis

but the assumptions around the actual valuation and scenarios that were at fault. Transparency has to fit in from the headline report numbers down to the market data used to feed the parameters. Timing of data is crucial, from the risk reports, the models, the data is very valuable.

**JC:** Someone said VAR didn't fail us, we failed VAR. We became overly dependent on a number: we didn't seek to engage with what that number was telling us. So the risk manager of 2010 and beyond will need to be a risk-savvy businessperson rather than an uber-quant. To illustrate why this is important, we became fixated on the high points and low points of the numbers and, as a result, we didn't necessarily look at what was in the collateral report. At the peak of the crisis, people were substituting high-grade collateral for very low-grade collateral. We have to move away from a world where risk and finance look at different numbers and half of the organisation spends most of the time reconciling that difference. We also have to move toward a world where models look at what happens if this moves and what that movement means to the portfolio, rather than simply looking at a distribution of outcomes.

**GL:** The other thing is flexibility. You get disparity when front office does a new transaction that back office doesn't have the tools to support. That's something we'd been dealing with for a long time. We have been approaching this by looking at boundary conditions, the calendar events of derivatives throughout their life that allows that approach to be very flexible. That flexibility is what the clients are looking for.

**EB:** At Pricing Partners, we have designed a scenario-based module where you can plug in all your scenarios and you can see what will happen when the market becomes irrational and there's no liquidity.

Also, when people talk about valuation, they talk about market data and pricing models. You need people who can understand the term sheet, what's going on behind the numbers. If you make everything automatic, it's a recipe for blowing up. You want to have some human control.

**Risk: How do you envision the environment around valuation data will evolve over the next five years at both banks and buy-side firms? Does the financial services industry have enough momentum behind this issue? Will spreadsheets still be the norm in 2014?**

**RB:** Spreadsheets will always play a part. Today's spreadsheets will be replaced by something more appropriate. It's about seeing this world as a continuum, about seeing this world as one of innovation and migration of that innovation into process solution. I believe spreadsheets will still be the norm in 2014; the question is how do we make sure that they are doing the right things, and how will people know when it's time to get rid of them and move into something more appropriate.

**JC:** In terms of spreadsheets, it depends to what extent exotics come back in 2014. I was talking to a head of structured products at a Tier-I bank whose view was that those markets won't come back for at least 10 years because of the overhang among the natural buyers of those products. If we're in a world where product sets are more vanilla, then it's conceivable that they will either be on exchange or in flow engines.

In terms of whether there is enough momentum in the financial services industry, I think the biggest constraint is good people.

There is an issue with taxation and the political pressure the regulators are facing is an interesting element in the industry.

**GL:** The use of spreadsheets will continue, especially in the front office where some of these processes and products are still evolving. The natural evolution is to have something in a spreadsheet, which essentially means you have data in a proforma that you can then use to model up and put into a defined process downstream. Spreadsheets will be there in 2014, but controls will also have to be put in place.

We're seeing a lot of structured products at the moment, new ones around what would historically be described as insurance products. They are now being traded by banks and those sorts of institutions. Structured products are still out there, but they are just not what we have been used to.

**JC:** Products such as longevity swaps have been around for a long time in the insurance and reinsurance space. It's interesting that you're seeing it now. Pension fund deficits are an enormous issue, so perhaps what we are seeing is product development driven more by a real business need than, say, a search for yield.

**GL:** That is true but there is also a shift in the way that they want to look at the valuation products. Until now, insurance and reinsurance-type products have been valued very much on an actuarial basis, but now they want to look at it on a banking and trading basis.

**JC:** That's driven by things like liability-driven investment and the need to manage some kind of bespoke portfolio that contains a large amount of life-related risks.

**BS:** Spreadsheets are great as analytical and reporting tools but they are appalling when everyone starts storing their own little world of data in them. Spreadsheets will still be around in 2014. If innovation does come back, you're going to need data warehousing technology behind the spreadsheet in the front office for front-office management that is as flexible as the business needs. That means data warehousing technology that doesn't take six months to change. It should be changed within a few seconds or a few minutes.

In terms of risk managers, the buy side doesn't yet have the resources to control all departments. We have seen a lot of increased expertise, quantitative expertise coming over from the sell side.

**JC:** That's an interesting dynamic. The risk manager advises the portfolio manager from the perspective of if the investor loses, then the buy-side firm loses and its franchise is at risk. The risk manager advises the portfolio manager on what the loss might be and how to avoid it but he can't set a limit.

Another interesting development is the asset servicing or custodian space. Custodians and asset servicers are facing an enormous amount of change given that most of the middle-office functions of big asset managers are outsourced. Asset servicers may ultimately elect to do their own valuations so that they can propagate a valuation with assured integrity into all downstream life-cycle processes – fund accounting, risk and middle-office services, custody and clearing, for example. The valuation vendors may support that process by independently validating the asset servicers' internally derived valuations. That's a seismic change for the asset servicing industry.