

LOAN CREDIT DEFAULT SWAPS (LCDS) are credit derivatives that reference syndicated loans, as opposed to other forms of debt instruments such as bonds that underlie most CDS. Because syndicated loans often get refinanced or nullified through corporate merger, LCDS include a 'cancellable' clause.

"The cancellable clause embedded in LCDS means that these types of derivatives could shorten in duration in response to prepayments," says Mark Ferguson, director of research at Quantifi in New York. "This is extremely important to a trader since change in duration plays a big part in the value of their portfolio."

Athanasios Stavrou, a trader at Asteri Capital in London, adds: "Quantifi's LCDS model is the only vendor model that factors in the probability that some of the reference names might cancel. With LCDS you have to account for the probability of default as well as the probability that the loans will get cancelled. This reduces the duration of the

single-name risk that you have."

Stavrou says that a trader may expect there to be a default within three years but, because of information from the market, he also expects the reference entity to cancel the loan before three years. As a result, he can make different assumptions on repayment based on the probability of cancellation.

"This will reduce the expected duration of the trade," he says. "And this can have an effect on the premium you pay. You could pay a high premium if the risk of default is high, but you could pay an even higher premium if there is the additional risk that the loan will get cancelled early. The Quantifi model effectively captures this additional risk."

During the early part of 2007 the market for LCDS grew steadily and with the successful introduction of an index, the LCDX, in May 2007, there was a dramatic acceleration of that growth. Quantifi has responded by adding valuation of prepayment risk for LCDX.



Mark Ferguson, Quantifi

Quantifi

Correlated recovery CDO models

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MODELLING COLLATERALISED DEBT obligations has always been a challenge. There were problems in May 2005 when market prices for certain mezzanine tranches couldn't be captured by models. This gave rise to base correlation methodology, which has been the industry standard since. And today, there are problems with this model as well, with many blaming it for the current "problematic" prices in the market, especially on senior tranches.

"Volatility in the credit markets exposed one of the most serious challenges faced by market participants, namely that prices cannot be fully accounted for by the consensus, standard model," says Mark Ferguson, director of research at Quantifi in New York. "The existing approach simply could not cope with the wide spreads on super-senior tranches relative to other market prices."

The solution that Quantifi was able to hone in on was to introduce a correlation between recovery rates and default.

"Our newest approach allows for higher recovery rates when there are not many defaults, and lower recovery rates when there a lot of defaults," says Ferguson. "As defaults increase, the new model introduces more risk in the super-senior tranches than was actually the case under the older model."

Quantifi responded to this market need with a series of related innovations. The first was an extension of the standard Gaussian copula model that added the ability to account for systemic risk in a way that greatly extended the range of market circumstances where these models functioned.

The second related innovation was the incorporation of correlated stochastic recovery within the Gaussian copula framework. This presented a more realistic treatment of recovery in the event of default. While some of the larger banks have adopted a similar approach to solving this problem, Quantifi is the only vendor to implement a CDO pricing model that incorporates stochastic correlated recovery.