

**From:** Bourdeau, Michele (NY) <mbourdea@lehman.com>  
**Sent:** Tuesday, March 25, 2008 3:25 PM (GMT)  
**To:** Venkatesh, P.C. <VenkateshP@sec.gov>  
**Cc:** Vecchio, Laura M <LVecchio@lehman.com>; Whitehead, Peter <pwhitehe@lehman.com>  
**Subject:** RE: Model review request

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Hi PC,

Below are comments related to the models you are requesting which are not in used or heavily used. Let me know if you would still like to see them.

I.) In terms of the NY Rates models, here are comments on some of the models:

- Skew Taper: is not being used anymore
- XCcy BGM, MC: Not in use
- Equity BGM FX: Not in use
- Inflation CVA: This model has no positions and is currently under review
- Rates-Credit Hybrid FHJM: is not heavily used
- Sword: will be replaced by a stochastic model, and is still under review

I do not think any of these models is of top interest but we can send you the reviews of the ones in use if you would like

IV.) Credit Models

- "Adjusted Black Model": not used anymore
- Portfolio Credit Default Swaption Model with Price Strike: is being replaced very soon by new model
- Scorpion: not in use
- CDO<sup>2</sup> Model ---Exact, Normal & Gamma Losses: not used anymore

VI.) Commodities

- CCO: not used
- NatGas storage model: still under review, still awaiting testing from quants.

Also, in what format would you like us to send you the material? Hard copies or soft?

Thank you.

Regards,  
Michele

-----Original Message-----

From: Whitehead, Peter  
Sent: Wednesday, March 19, 2008 10:32 AM  
To: 'Venkatesh, P.C.'; Bourdeau, Michele (NY)  
Cc: Vecchio, Laura M  
Subject: RE: Model review request

Hi PC,

Thanks for the list below. I'll let Michele make any comments regarding the NY Rates models.

Just a couple of points regarding the London Rates models:

-FunOpt4 is no longer in production- a new fund derivative model, the "MMLib Fund Derivatives" Pricing model was approved in February and is in production for all fund derivative trades so it would probably make sense to look at the new version.

-CMS Spread and CMS spread options model- this is not actually used in production.

-Quantlib models- Quantlib is the original IR model library which was developed in London from 1996 onwards. I believe that MVG's first review of Quantlib models dates back to 1998 and this has nothing to do with the open source "Quantlib" library.

-Equity models- I'll pull together a selection of models using your criteria below.

Many Thanks,

Kind Regards,

Peter

-----Original Message-----

From: Venkatesh, P.C. [<mailto:VenkateshP@sec.gov>]

Sent: Wednesday, March 19, 2008 2:09 PM

To: Bourdeau, Michele (NY); Whitehead, Peter

Cc: Venkatesh, P.C.; Vecchio, Laura M

Subject: Model review request

Hi, all, hope the excitement is subsiding a bit. Below is a list of model reviews we'd like to get. I pulled these from the Model Inventory sheets you gave us recently. I used a combination of the model name, model description and product scope in selecting these. I was also loosely aiming at getting a broad cross-section---"core" models/frameworks likely to be heavily used; models likely to have some complexity, potential sensitivity to modelling assumptions, and so on. Would welcome your suggestions regarding deletions (e.g., zero use; substantially similar to another on the list) from, alternates or additions to this list.

I apologize for the length of the list, but I fully expect that the request lists will become much shorter as our baseline understanding of the firm's model set improves.

Also, there is no great urgency to this request---I certainly do not need these prior to our Model Control in April.

Of course, feel free to call or email with any questions concerning this request.

I. Rates NY  
CVA model [based on FHJM]  
FHJM Callable Monte Carlo

Skew Taper  
FHJM FX  
XCcy BGM, MC  
Equity BGM FX  
Inflation CVA  
BMA FHJM Tree  
BMA Spread or Ratio model  
Rates-Credit Hybrid FHJM  
Sword

II. Rates London  
FunOpt4  
SABR  
XCcy Libor Market Model  
Markov Functional Models  
CMS and CMS spread options

III. FX Models  
SMile PGX

IV. Credit Models  
"Adjusted Black Model"  
Portfolio Credit Default Swaption Model with Price Strike Scorpion  
CDO<sup>2</sup> Model ---Exact, Normal & Gamma Losses Base Correlation model [most recent] & Low strike extrapolation 2F Lognormal Hazard rate model

V. Mortgage Models  
IR Model for Mortgages ---differences vs. FHJM HPA model CCO [if used]  
NatGas storage model [if used]

VI. Quantlib Models \* Is Quantlib just the library name? Any connection to the open-source library of same name?

VII. Equity Models

Perhaps it would be useful to start with 1 or 2 representative/recent models for these product/instrument types:  
Barrier, Asian, multi-asset, cliquet, napoleon, "mountain-range" types, variance swap (and allied).

And perhaps a heavily used Common Methodology/Numerical Method---e.g., Local Volatility.

Naturally, if you have other recommendations, I'll go with those.

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