Dear SomeoneSomewhere,

Your questions are very well posed, but the answers are depending essentially on the use of the convertible bond pricer by the users and the budget you are ready to allow for pricing.

a) About pricing model

i) & ii) Pricing models you are suggesting are standard lore in the market especially AFV. Good definition of the underlying(s) process is the first step, but for real market entire CB universe pricing, you have to deal with very partial information: for CB you need to determine at least volatility of the underlying equity and one measure of credit risk. For most convertible bonds, no option and/or no comparable credit derivative are available. So diffusion model can be state-of-the-art but if no data is available for the calibration, rigorous estimation of the n model parameters will be a waste of time.

iii) New Bloomberg pricer is effectively a good one for plain vanilla CB in quiet market conditions. If you want to use Bloomberg OVCV NEW as primary pricer, you need to test the convergence and the stability in all market cases: implied pricing with high credit risk, calibration of credit risk with inverted yield curve, stability of implied vol near the dividend exercise date etc.

Even for plain vanilla CB, does OVCV provide hedge ratios for equity, credit and interest rates? For more complex models with link between asset classes [for example Credit = C0 (S/S0)^Beta ], does OVCV provide specific hedges for each asset class?

For non plain vanilla CB, exotic features such as soft call, dividend protection, take over protection etc. are maybe not well supported in OVCV. For example, soft call have at least 5 different exercise conditions (n consecutive days, p days during n consecutive days, n days average, p days average during n consecutive days, VWAP during n consecutive days), Bloomberg model approximates the exercise condition by calculating the ?equivalent? level of an hypothetical 1-day barrier, which can lead to serious mispricing especially for the greeks. [Above the equivalent barrier delta is 100, so think about the gamma near the soft call trigger]. (Source: OVCV Model Description Version 1.20)

Is it possible to tweak OVCV? [See c) i) for tweaking purpose]

b) Usage perspective

i) & ii) more than one pricer: it is a good idea to have several pricing software, nevertheless it seems difficult to provide them exactly the same data. For example, even for the simplest thing in CB valuation, the yield curve, pricers do not have standard lore (cash and swap rate, interest rates futures, zero coupon yield curve), this has an impact on the calibration of the risk free rate and has an impact on the rho (or DV01, sensitivity to interest rate) because 1bp shift in a swap curve is not equivalent to 1bp shift in a ZC curve.

For more complex issues, such has credit risk or volatility, definition of the variable is not straightforward:

- Credit risk can be :

-- An additional yield over the risk free yield curve (which obviously depends on the type of the yield curve [ZC or swap])

-- OAS, Option Adjusted Spread (how is it really adjusted?)

-- The CDS spread (obviously a CDS pricer is needed to do something with this data)

-- Default probability (the only mathematical variable for defining credit risk, nevertheless how do you find it?)

- Volatility can be:

-- Black&Scholes volatility (for corporate bond subjected to credit risk, what does it mean?)

-- Brownian volatility (the pure variable that drives the underlying diffusion, but which is maybe not used for other derivatives such as options that include the jump probability into the observed skew)

-- Something not straightforward: with link between asset classes, for example between Equity and Credit, volatility on the equity creates volatility on the credit risk.

Conclusion: before comparing pricing outputs on several pricers, how do you ensure that they see the same inputs?

iii) Data quality

Once you are trading CB, you need to pay an acute attention to the prospectus. One option trader said me, ?I do not understand anything about CB volatility, you believe that you make an arbitrage between implied and realized vol, but in fact you are just making a bet on the 4.1.2.1 paragraph about takeover protection?.

So maybe you do not want to trust blindly data providers?

Several pricing softwares provide updates on CB data, which are not always free: you need to evaluate the quality and the response time of this service.

c) Quant vs Trading

i) Getting right prices

- Trading: you need to obtain a measure of richness (implied vol, implied credit risk) which is comparable for all CB (and Exchangeables) and comparable to other derivatives (option, CDS).

Here, I believe that the same pricer for all derivatives is needed.

- Quant: you need the possibility to tweak the model in order to fit market behavior. For example, due to practical reasons (computation time, data availability, pricer validation), traders are using the simple model of the CB pricer. Once the market moves and activates a clause of the CB (soft call, dividend protection, take over protection) or introduces a link between asset classes (remember post Lehman default), you need to price the CB in the ?debug? pricer (with the complex model) and provide a good parameterization of the CB for the simple pricer used by the traders.

Here, I believe that you need a pricer that offers a stand-alone solution (such as an xls worksheet) for the studies, and that allows the user to modify all the parameters of the CB.

ii) Data

- Trading: information is the aim of the business so I do not believe that you want to trust a third party for these.

- Quant: you need a perfect control of all the static parameters of the CB, with automation capabilities. Here I believe that a database with all writing rights is needed.

d) Small Comparison

i) In house development vs commercial pricers

Development of a state-of-the-art pricer with all clauses, and rigorous underlying processes models is a long work. I think that front office quants have better to do with quantitative trading strategies, optimal hedging strategies, or tweaking the commercial pricer than building and maintaining a bloatware.

ii) Stand-alone pricers vs remote pricers

- Control

Stand-alone pricers provide all the control you need on the data and the pricing model. They can be integrated in your FO and BO systems. Remote pricers provide overriding capabilities only on a few parameters and variables, and can not be really integrated in your systems.

- Automation

Did anyone try to develop something automated with remote pricers?