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ConvB Data Sheet

General

ConvB is a specialty software program designed for Convertible Bonds and Preferred Shares. It combines:
- An extremely fast algorithm; with
- A very simple connection to the Bloomberg database and other data bases.

This enables the user to load the details of a complete portfolio of bonds and re-price them literally in real time.

For the first time - you can continuously monitor your hedge ratio and adjust your trading based on the calculated Delta.

On the Maths

ConvB is a PDE based model for Convertible Bonds. The numerical scheme is uses a combination of Implicit and Crank-Nicholson approach and has been designed by a Professor at the Mathematics Department at The University of Chicago. Some of the advantages are:
- We can place nodes at important stock prices (e.g. trigger events)
- We can place "time slices" at important date (e.g. coupon payment dates)
- …This results in very smooth price, delta and gamma curves
- Very fast algorithm: large time steps where nothing happens and small steps where "something" happens (e.g. coupon, dividend, call or put etc.)

Coverage

The program has very many features and can handle bonds with a variety of features. These include:

- Convertible bonds
- Convertible Preferred Shares
- CoCos
- Floating rate convertibles
- Convertibles with embedded warrants
- Convertibles to shares and cash
- Step up coupon
- Dual Currency Convertibles
- All kinds of mandatory convertibles: Percs, DECs, ELKs, Reverse Convertibles and more
- Warrants – call and put options

Connection to Bloomberg

ConvB can get all the relevant details for a specific convertible from the Bloomberg, All the user needs to do is to enter the Cusip of the instrument. The machine will get the details of the convertible, its underlying stock and also the relevant yield curves. It is possible to enter an entire portfolio of bonds and preferred shares. The machine will get the data for each instrument. You can accept the Bloomberg data or use manual over rides for the various fields.

Saving and retrieving data

ConvB has a feature to allow the user to save the details of a bond to a flat file (.csv file) and also retrieve the information from such files.

Dividends

Dividends on the underlying stock are either "lumpy" or we can use a dividend yield model. We plan to allow input of several lumpy dividends followed by a dividend yield.

Stock Borrow Rates

These are accommodated. A hedge fund can enter the stock borrow rate applicable for that underlying stock.

Default Model

ConvB uses a "hazard rate" approach. The risk neutral probability of default is determined by the spread and recovery value. The user can vary the spread as a function of the stock price. This can be done via an input table or automatically using a variant of the Merton model.

Volatility

ConvB accommodates a term structure of volatility. It also can support a volatility which is dependent on the stock price (Volatility skew). This manes that ConvB can accept complete volatility and credit spread surfaces.