Model Status / To –Do

Patricia 3/2014

(unordered list)

* Non-zero loss at default
* Check/debut current LLR implementation and opportunity cost
  + \*\* make opportunity cost only apply to unused LLR funds (?)
* Implement abilty to make LLR 2-3x the size of expected losses, and/or allow for a difference between expected losses and actual losses in the portfolio
  + Opp cost only calculated on unused portion of LLR funds
* *Post github reference for model and this to-do list on jive*
* *Plug zimring’s numbers into the model, see if it results in the same terms for the user*
  + *Probably a problem if it does*
  + Could attempt to address mathematically if a 100% LLR would cost the same as an IRB for the same user terms.
  + Would the balancing-out of LSR and LPCR result in the same size reserve for a given set of user terms?
* Figure out how to implement bank risk preferences and/or value the uncertainty in default rate
  + May be necessary for differentiating IRB from LLR
* \*\*\* Figure out how to calculate and/or graph the “break even” point for a LLR – when (at what gvt cost of capital) the cost to gvt for the LLR is the same as the cost to gvt for an IRB, delivering the same terms to the user.
  + Plot gvt ‘break even’ cost of capital against (LLR/expected loss)

**On the docket**

* Figure out how to make LLR and IRB play out correctly
  + Make bank.NPV calculation correct
  + Incorporate ev.pmt into bank.NPV calculation
* Figure out how to separate out the IRB payment from the user payments for the purposes of applying the expected chance of default, and for the bank.
* Should the more certain nature of the IRB payment affect the loan payment required by the bank? Should it just be implemented as an upfront payment to the bank? Will this have the same effect?
  + Is IRB value independent of interest.rate? It will need to be to implement IRB as an upfront reduction in loan amount.
* **Cost of LLR Capital**
* **Monthly vs annual interest rates, compounding**
* **Risk premium**
  + Need to think about where this needs to be implemented.
  + For IRB, there is risk, but not in the risk payment.
  + For LLR, there is less risk, but there’s still (1-LSR) of the risk.
  + **ISSUE: can result in negative interest rates, especially in concert with the non-zero recovery at default. This is partly a function of bank.NPV=0**
  + Recovery = 0 seems to result in the loan loss reserve having no effect on interest rates.
* 4% expected loss != 4% chance of default over tenor of loans. Understanding what the realistic parameter is for chance.full.loss…
  + What is the expected loss if the chance of default is 4%?
  + Specifying realistic parameters
  + **Calculate percent lost. (is it the premium over the bank’s hurdle rate?)**

**Resolved Issues:**

* **~~Non-zero recovery at default~~**
  + **~~ISSUE: 40% recovery rate decreases interest rates DRAMATICALLY (by ~8%). This seems unrealistic.~~**
  + **~~Also results in very negative bank.NPV when there is an IRB (why?)~~**
* **~~Why is interest rate not risk free with LSR = 1?~~**
  + **~~Somehow a higher recovery rate is resulting inhigher interst rates. This is obviously wrong.~~**
  + **~~Also a higher LSR is resulting in a higher interest rate.~~**
  + ~~Risk free: EV.pmt =1~~
* **~~Also LSR value doesn’t appear to have an effect on interest rates or gvt reserve size or, really, anything…~~**fixed. Wasn’t referencing input matrix for LSR value
* LSR value was multiplied by the whole (1-nodefault)\*(1-recovery rate) expression**~~Why does recovery rate (0 vs 40 %) create a 7% interest rate difference in user/bank interest rate when LSR = 100%?~~**
  + ~~Doesn’t appear to depend on loan.loss…~~
  + ~~A 100% recovery rate does not result in a riskless loan. Interest.user>bank.hurdle.~~
  + ~~Recovery doesn’t appear to have an impact when LSR =0. This is all backwards~~