MF 772: Credit Risk

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Problem set # 2

Due: Thursday, October 5, by 5pm.

1. Suppose you are creating a bespoke Emerging market sovereign credit index product that is a function of the following underlying single-names:

Entity	Weight	5Y Par Spread (bps)
Brazil	0.25	223
Turkey	0.25	443
Russia	0.25	116
Chile	0.25	56

   Assume that each entity has an assumed recovery of 40%.

   (a) Find the constant hazard rate that matches each par CDS spread and the survival probability of each entity five years in the future.

   (b) Calculate the fair spread of the bespoke index.

   (c) Suppose the dealer quotes you a spread of 200 basis points to enter into this contract. Would you enter into this contract? Would be long or short protection?

   (d) Is there a trade available with the single-names and the bespoke index that you would engage in? Describe carefully the units of each item you would buy or sell and the properties of the entire package.

2. Consider an investor who is looking to harvest carry in credit markets:

   (a) Download historical data for HYG, JNK and LQD and clean the data for stock splits and other anomalies.

   (b) Calculate the rolling 1y realized volatility of each ETF and comment on any patterns that you observe.

   (c) Estimate the carry in each ETF and compute the implied sharpe ratio due to carry as: $\frac{\text{Carry}}{\text{Realized Vol}}$. Where realized vol is measured over the entire period. Rank the ETFs by their relative carry and compare them to the analogous value for S&P 500 and comment on the difference.

   (d) Obtain at-the-money implied volatility data for each ETF and compare it to realized volatilty. Is it higher or lower? Why?