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Addendum 5 to the CRI *Technical Report, (Version: 2012, Update 2)*

This document updates the Technical Report (Version: 2012, Update 2) and details the change from monthly sigma to daily sigma. These changes have been implemented as of the probabilities of default (PD) released on 15 January.

Daily Sigma

One of the firm specific variables in the RMI PD model is idiosyncratic volatility, which is taken as sigma - the standard deviation of residuals when a firm's month market cap returns are regressed against the stock index's monthly returns - following Shumway (2001). Shumway (2001) reasons that sigma should be logically related to bankruptcy since firms with more variable cash flows and therefore more variable stock returns relative to a market index are likely to have a higher probability of bankruptcy.

Until now, sigma has been computed by using the previous 12 monthly returns.

However, using month end returns for calculating the sigma does not sufficiently capture the fluctuations at time scales shorter than a month. In order to capture these changes, we now implement the daily sigma, where the sigma is calculated using the daily returns of the past year. Once the regression is computed using the previous 250 daily returns instead of the monthly returns previously used, we take the standard deviation of the residuals to obtain the daily sigma. During the implementation, we ensure that we have a minimum of 50 valid data points. Otherwise we set the sigma to be missing. The sigma is then scaled to obtain an annualized number.

This new development ensures that the sigma included in our model provides a more accurate and timely measure of idiosyncratic risk of individual companies.