

## Executive Summary

We take the first effort to systematically study the rating migrations of CMBS. We seek to first lay out some important facts about CMBS rating migrations. For example, how often are CMBS upgraded or downgraded? Which CMBS rating classes are more likely to be downgraded than others? What is the chance of an AAA rated CMBS bond falling below investment rating? Are there temporal variations in the rate of upgrades and downgrades? Do the rating migrations issued by different CRAs follow the same or different patterns? Then we take a step further to examine the drivers and determinants of CMBS rating migrations. We build models for the upgrade and downgrade probabilities of CMBS and study the importance of macroeconomic factors, CMBS deal-specific factors and peer behavior in affecting CMBS upgrades and downgrades. We also investigate whether there are structural breaks in CMBS rating migrations.

The main data used in this study are the history of CMBS credit ratings made by the three major CRAs, Standard & Poor's (S&P), Fitch and Moody's. We also match CMBS deal, bond and loan data from Morningstar as well as macroeconomic and financial data from other sources to the ratings data.

Our main findings are: 1) many of the CMBS credit ratings change subsequent to their initial assignment and the change can be as significant as three or more notches downgrade. All three major CRAs have over 50 percent of their initial credit ratings changed, and about 30 to 38 percent of the CMBS bonds had three or more notches downgrade. 2) CMBS rating migrations are asymmetric. All three CRAs have significantly more downgrades than upgrades, even though Fitch has more symmetric rating migrations comparing to the other two CRAs. 3) CMBS bonds issued in different rating classes have significant discrepancies in upgrade and downgrade probabilities. Generally, speculative CMBS bonds (BB or below) have the highest probability of downgrades while AA and A bonds have the highest probability of upgrades. 4) Contrary to some CRAs' claims that their ratings are "through-the-cycle", CMBS ratings change depending on the business cycles. There are systematically more downgrades during recessions, and business cycle indicators such as national unemployment rate, coincident indicator and yield slope are significant drivers of CMBS rating migrations. 5) In addition to macroeconomic conditions, deal-specific factors such as loan-to-value ratio (LTV) and debt-service coverage ratio (DSCR) affect CMBS rating transitions. Improvement in deal average of the LTV and DSCR has positive impact on rating upgrade and negative impact on rating downgrade. 6) CRAs take information quality into consideration when making rating changes. When the realized DSCR is better than the underwritten DSCR, CRAs are more likely to upgrade CMBS bonds and less likely to downgrade CMBS bonds. 7) There is clear herding in CRAs rating change behavior. Lagged rating changes of the other CRAs are good predictors of current rating changes of a particular CRA. The results are very consistent across all three CRAs. 8) The CRAs tend to resist to multiple rating changes on the same bond, possibly due to the bad signal such behavior sends out about their initial ratings (they had to make multiple changes subsequently). 9) We see a structure break in CMBS rating migrations in 2009. CRAs became reluctant to rating upgrades and more likely to issue rating downgrades.