Commercial Mortgage Prepayments

Under Heterogeneous Prepayment Penalty Structures

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Executive Summary

Much of the existing research on pricing commercial mortgages and commercial mortgage-backed securities has assumed homogeneity in prepayment penalty structure. In this paper, we show that such an assumption may be inappropriate and examine the effect of penalty structures observed in actual contracts, using both numerical simulation based on option theory and empirical analysis.

Simulations show the value of the prepayment option to be about 5.8% of par; that is, it is worth 5.8 points for a borrower to be to prepay at any time without penalty. Empirical hazard models estimated from data on some 2,000 multi-family mortgage loans show expected prepayment rates when various penalty structures are imposed. While yield maintenance and lockout provisions are highly effective in reducing prepayments, weaker penalty structures produce prepayment patterns that are consistent with option-theoretic predictions. For example, with lock-out periods that are shorter than loan term, borrowers wait until expiration of the lock period then refinance immediately thereafter, producing a sharp surge in prepayments at that point in time. Likewise, with step-down penalty structures, prepayment rates decline prior to the next step-down in the required penalty. We conclude that investors in CMBS must carefully consider the actual prepayment penalty structure on mortgages in the collateral pool and not assume away prepayment risk.