Commercial Mortgage Prepayments

Under Heterogeneous Prepayment Penalty Structures

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Draft
January 15, 2000

This research was funded by a grant from the Real Estate Research Institute. The authors wish to express their appreciation to the RERI for financial support, to Citicorp Mortgage for data, to Jenny Yu Zhao of the University of Wisconsin-Madison and Fuhat Sahin of Saint Louis University for research assistance, and to David Ling for advice and guidance. Preliminary draft: this research is not to be used or cited without the consent of the authors. The views expressed are the authors alone and not necessarily those of Citigroup or any of its affiliates. Any errors remain our own.

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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.