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Curtailment as a mortgage performance indicator [☆]

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Abstract

This paper studies the impact of mortgage curtailment behaviors on the subsequent default and prepayment performance. Although curtailment is not a popular event in the western countries, it is the dominant form of prepayment in Asia and other high saving rate regions. Using a sample of loan-level mortgage performance records from Taiwan, the results of the multinomial logit regressions indicate that curtailment is one of the most significant factors in predicting future default and prepayment probabilities of a seasoned mortgage pool. Mortgages with past curtailment are estimated to be 85% less likely to default and 23% more likely to prepay during the remaining life than a mortgage without any curtailment. Hence, ignorance of past curtailment records could lead to biased projection of default and prepayment and, hence, the pricing and hedging of a seasoned mortgage-backed security. By collecting and incorporating curtailment information, investors could more accurately estimate the fair market value, disclose risk-based capital, and perform effective hedging of a particular mortgage portfolio. © 2005 Elsevier Inc. All rights reserved.

JEL classification: G1; G21

Keywords: Mortgage; Prepayment; Curtailment; Default; Securitization; Multinomial logit; Competing risk; Portfolio management; Seasoned MBS; Loan level data; Taiwan

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1. Introduction

A mortgage loan is a debt contract that is secured by a real property. The borrower obtains a loan at origination and promises to repay at a fixed amortization schedule. At each point in time during the amortization period, the borrower has the right to choose among four payment actions: scheduled payment, complete prepayment, default, and curtailment. Much of the literature in mortgage finance considers a mortgage contract embedded with default (put) and prepayment (call) options for mortgagors.² Default means that the borrower exercises the put option by selling the collateralized house to the lenders at the price equal to the unpaid principal balance (UPB) of the mortgage loan. The prepayment option gives the borrower the right to buy the loan back from the lender at the price equal to the UPB. The distinct difference is the fact that default only happens at the payment due dates, while a partial or complete prepayment can take place at any time before the maturity date.

The past delinquency history of the pool or similar loans is a key indicator of the future default risk. Pools with a high past delinquency rate are likely to experience high future default rates. As a result, the investor would require a higher return for pools with high delinquency records. When securitizing a seasoned pool of mortgages, an issuer would usually exclude loans with past delinquency records in order to realize a good sales price.

Curtailment refers to the event that a borrower makes a larger than scheduled periodical mortgage payment. The extra amount paid will be used to reduce the UPB of the mortgage.

Although curtailment may not be a popular event among the western countries, it is recognized as the dominant form of prepayment in some regions with high saving rates, such as the Asian markets. In those countries, when a household receives extra income, such as a year-end bonus, partially repaying the outstanding debts is always a high priority alternative way of using the money. This behavior is consistent with the high savings rate observed in these regions. As the mortgage market in those regions matures and becomes more competitive, there is an increasing need to understand the impact of curtailment.

The rest of the paper is organized as follows. The next section reviews relevant literature. Section 3 introduces the model and hypotheses regarding the impact of curtailment on future default and prepayment. The Section 4 presents the sample data and the econometric model applied in the empirical analysis. The Section 5 reports and interprets the regression results and their implications. The Section 6 concludes our study.

2. Literature review

Relative to the extensive academic literature on complete prepayments, the curtailment literature is limited. There are only four papers that document curtailment

² For example, Kau et al. (1995), Buist et al. (1998).

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