Prepayment option and the interest rate differential between a fixed- and floating-rate mortgage loan

Abstract

Previous studies identify the interest rate differential between a fixed- and floating-rate mortgage loan as the most important factor in explaining mortgage choices. We argue that this differential is a premium paid by a fixed-rate borrower, who may exercise the option to pay off the loan on each payment date after the payment of certain penalties. The borrower will prepay the balance of the loan and apply for a new loan if the market interest rate falls sufficiently below the contract rate. Taking this option value into account, we derive an equilibrium condition that determines the interest rate differential. We find that the differential expands when the term of the loan lasts longer or when interest rates increase at an unpredictable rate because the fixed-rate borrower will then have a more valuable option to prepay the loan.

Keywords: interest rate differential, mean-reverting process, mortgage loans, prepayment option