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Case Study Series

A Case on Mortgage Loans and Refinancing

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Introduction

Since the mortgage crisis occurred between 2008 and 2012, the government has been keeping the interest rates low to boost the economy. Even with the improvement in the housing market, the 30-year rate has still been hovering around 3.5 - 4.5% in the past five years. The low mortgage rate has made the purchase of homes and refinancing very affordable, especially compared to the double-digit rates in the 80's.

Types of Mortgages

Two main types of residential mortgages are the variable-rate and the fixed-rate mortgages. With variable rate mortgages, the interest rate will be adjustable based on an index. The monthly mortgage payment will be different based on the fluctuation of the interest rate. Fixed rate mortgages, on the other hand, will have fixed monthly mortgage payment because the interest rate is locked in for the life of the loan.

Since the current interest rate is relatively low compared to the past 30-year period, Susan understands that interest rates will likely go up in the future. As her income is fixed, she is interested only in fixed-rate mortgages.

Mortgage Costs

The cost of a mortgage is determined mainly by the interest rate and the closing costs. The mortgage rate varies based on the term of the loan. The longer the maturity, the higher the interest rate would be. The closing costs involve the attorney fees, the escrows, the origination fees, the advanced fees for insurance and other fees. Most of these costs are common to all except for the mortgage loan fees. The loan fees are costs incurred due to the underwriting and processing of loans. It includes appraisal fees, loan origination cost, credit reports and discount fees. In exchange of a higher interest rate, lenders may offer discounts on the loan fees, hence lowering the closing costs. Borrowers will then have to decide whether it would be advantageous for them to take the lower interest rate with the full closing cost or the higher interest rate with a lower closing cost.

The Decision

When Susan considers various alternatives of fixed rate mortgages, her main deciding factor will be the interest rate and the loan costs. Susan knows that a safe investment like a T-Bill yields about 0% nowadays. So, she thinks that she would need to take 0% return as her opportunity cost. Now, she is considering several different alternatives for her new mortgage. She will evaluate each of them and will then make a decision.

1. Susan feels that she may need to move out-of-town due to her job prospects in 5 years or so. Susan is considering purchasing a new home for $200,000 and she wants to pay 20% down. She is considering a 30-year loan. The broker offered her two alternatives. One of them is a 30-year loan with an APR of 3.25%. The closing costs for this loan will be

$5,000. The other one is a 30-year loan with a lower APR. With this loan, Susan will accept a higher interest rate in return for more favorable closing costs. The APR for this second alternative is 3.625%. Because she will pay a higher rate, her closing costs would be very favorable. In fact, instead of paying for closing costs, she will receive $1,000 from the mortgage firm. Which alternative would be more advantageous for her? She knows that one alternative is better than the other for a certain period of time, and after that, the other one would be more advantageous. What is the critical point (in terms of time) where her choice would change from one alternative to the other?

2. She wonders what happens if the opportunity cost is 5% per month. Again, she wants to see when the two alternatives are equivalent.

3. She has extra money in her bank account, so she is thinking that she can have a bigger down payment (i.e. 50% down). The firm offers the same two alternatives. Using the 0% opportunity cost, which alternative should she prefer? Under that scenario, what would be the critical point where her choice will change?

4. Susan is also considering a 15-year loan. The broker offers the same alternatives except for a small difference in the first alternative. In the first alternative, the closing cost will be only $500 (rather than $5,000). If she makes a 20% down payment, using the 0% opportunity cost, which alternative should she prefer? Under that scenario, what would be the critical point when her choice will change?

5. Please refer to question #4. With a 15-year loan and a 50% down payment, using the 0% opportunity cost, which alternative should she prefer? Under that scenario, what would be the critical point when her choice will change?

6. Susan's friend is also using the same brokerage firm for her refinancing. She is refinancing for a new home that she wants to stay in for a long time (roughly 10 years). She will refinance her current loan with a balance of $100,000 (no down payment). She will do a 15-year loan. Her alternatives are a 3% APR loan with $1,500 in closing costs versus a 3.375% APR loan with only $500 in closing costs. Using a 0% opportunity cost, which alternative should she prefer? Under that scenario, what would be the critical point when the better choice becomes the other alternative?

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