Chapter 8. Comparing Loans

S8.1 This is the middle of December, 2009. On June 1, 2000, you took a 15 year fixed mortgage loan for $250,000 at a 6.5% APR. Your payments are current on this loan. On September 1, 2006, you took a home equity loan of $55,000 at a fixed 5% APR. You made interest only payments for 3 years and then started paying $450 a month regularly. On September 1, 2008, you took a 48 month auto loan for $22,000 at a fixed 8% APR and have been making your payments regularly.

You are now offered a loan that will pay off all of the above loans and replace them with a single loan (a "consolidation loan") with a fixed 6.8% APR and a fifteen year term. The payoff of the old loans and the beginning of the new loan would take place on January 1, 2010.

a) What were your total monthly payments in December of 2009?

b) If you took the new loan, what would your monthly payments be?

c) Regardless of whether your total monthly payments have gone up or down, is this a good deal?

a) Using Ch4Mortgages,xls: On the mortgage loan the regular monthly payments are $2,177.77. On the home equity loan the payment after the first 36 months is specified to be $450.00. On the auto loan, the regular monthly payments are $537.08. The total of the monthly payments in December, 2009, is therefore $3,164.85.

b) Remember that Ch4Mortgages.xls reports the balance immediately after the monthly payment. Assuming that you want the new loan to "kick in" on January 1, 2010, the loan principal must be the sum of the balances reported by Ch4Mortgages.xls and the payments due on January 1, 2010. This is $119,050.90 + $54,111.00 + $15,431.05 + $3,164.85 = $191,757.80.

c:) To answer this question, we must calculate two numbers: How much I would need in the bank on January 1, 2010, to pay off the three loans as they stand and how much I would need in the bank on January 1, 2010, to pay off the new loan. The lower of these two numbers is the better deal. Since I am being offered the new loan at 6.8% APR, this is the interest rate I should use for the present value calculations.

The second number above is the easiest to answer: To pay off a $191,757.80 loan at 6.8% APR taken on January 1, 2010, with a bank account that is earning 6.8% APR, on January 1, 2010, I need exactly $191,757.80 in the bank.

The first number is the sum of the amounts I would need to pay off each of the individual loans.

For the mortgage loan, the payment due on January 1, 2010 ($2,177.77) has a present value on that same day of $2,177.77. The next month's payment has a present value of $2,177.77/(1 + .068/12) = $2,16.50. The last payment's present value on January 1, 2010 is $1,508.34 and the sum of all these present values is $120,312.90.

For the home equity loan, the regular $450 per month payments up through December 1, 2023, reduce the balance to $88.24. On January 1, 2024, a final payment of $88.58 pays off the loan.

Following the same procedure as in the previous paragraph, the present value of all of these payments on January 1, 2010 is $48,988,99.

Following the same procedure once more, for the auto loan the present value of the remaining payments on January 1, 2010 is $12,557.24.

The total of all three present values is $120,312.90 + $48,988.99 + $12,557.24 = $181,869.13. Since I am being offered more than this amount, I am being offered a good deal.

S8.2 Five years ago today I sold my home and took back a mortgage loan for $100,000 at a fixed APR of 8%, payable over ten years. "Took back a mortgage" is jargon for acting as the banker and issuing a mortgage on the sale of your own home. In this situation the buyer only has to produce the sale price of the home minus $100,000 at the time of sale (the closing).

This morning a got a telephone call from a person offering to "buy my note", i.e. to pay me cash for the remaining mortgage loan and to become the payee of my buyer's monthly payments.

Neglecting any possible fees, costs, whatever, what is a fair price for the sale of my note?

The outstanding balance today (after making this month's payment) is $59,838 (to the nearest dollar). $59,838 is the fair sale price.

If interest rates have dropped, then buying the note for this amount is a very good deal for your original borrower. In this case he's refinancing the note by borrowing this amount at less than 8% APR and paying you back. Of course unless your original note allows for prepayment with no penalties, you don't want the note paid off in this situation – you'd earn less on the money going forward. If rates have gone up then you'd love to sell the note for this amount so that you can reinvest the money at the new, higher rate. In this case however, your original borrower probably doesn't want to pay off the note any sooner than he has to.