

## PROBLEM SET #9

Suppose we have two securities:

- a. A mortgage pass-through (PT) with par value=\$100,000, a 7% coupon (which equals the rate on the underlying mortgages) on a 15 year mortgage pool. The current market is 7% and prepayments at this rate equal \$31 per month. At this prepayment rate, the PT will be paid off in month 170. The required mortgage payment for the \$100,000, 15 year mortgage at 7% is \$899 and the amount received on the PT is  $\$930 = 899 + 31$ .
- b. An annuity with a monthly payment of \$930 per month for 170 months.

At an interest rate of 7%, the price of both securities is \$100,117, so that we are indifferent between the two.

1. Suppose interest rates rise to 8% and that there are no prepayments at this rate. What is the payment on the PT and the life of the PT? What happens to the value of the PT versus the value of the annuity?
2. Suppose interest rates fall to 6% and that prepayments rise to \$51 per month. What is the payment on the PT and the life of the PT? What happens to the value of the PT versus the value of the annuity?