

RE 618 / Fin 618 – Real Estate Investment Analysis
Homework – Commercial Property Finance – Solutions

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1) Consider a property with a first-year expected NOI of \$450,000 that can be purchased for \$5.6 million. Financing is available with a 10-year balloon loan amortized over 20 years at 7 percent interest. The lenders maximum loan-to-value (LTV) ratio is 75 percent and its minimum debt-coverage ratio (DCR) is 1.3.

a) Based on the debt-coverage ratio, what is the largest loan this lender will provide on this property?

$$\begin{aligned}\text{Max ADS} &= \text{NOI} / \text{DCR} = 450,000 / 1.3 = 346,154 \\ \Rightarrow \text{Max PMT} &= \text{ADS} / 12 = 28,846.\end{aligned}$$

$$\begin{aligned}P/Y &= 12, N = 20 \times 12 = 240, \text{PMT} = -28,846, \text{FV} = 0, I = 7 \\ \Rightarrow \text{PV} &= 3,720,649.\end{aligned}$$

b) What is the largest loan available based on the LTV ratio?

$$\text{Max Loan} = V \times \text{LTV} = 5,600,000 \times 0.75 = 4,200,000.$$

c) Taking both of these restrictions into account, what is the most the lender will loan on this property?

The lesser of the two figures, or \$3,720,649.

d) Based on this loan amount, what is the DCR of this loan?

Given that the loan amount was restricted by the DCR limit, the DCR will be 1.3.

e) Does this investment exhibit positive, negative or neutral financial leverage? How do you know? What does this imply about this investment?

$MC = \text{ADS} / \text{Loan} = 346,154 / 3,720,649 = 9.3\%$. Since this is greater than the going-in cap rate ($R = \text{NOI} / V = 450,000 / 5,600,000 = 8.0\%$), this investment will have negative financial leverage. This means that increases in the loan amount will lower the cash-on-cash return. If the goal of the investment is current income, this is not desirable. On the other hand, if you expect large capital gains over time, this may be OK.